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BYOD Security — John Howie

The potential pitfalls of Bring Your Own Device (BYOD) security can negate the possible benefits. Learn the risks and how to mitigate them by implementing a BYOD policy to help protect your data and systems.

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Will IT Pros Rush to (or from) Windows 8?

The final release of Windows 8 is only months away, and few would argue that Windows 8 isn't a monumental release for Microsoft. The most prominent aspect of Windows 8 is the new Metro UI design, which brings the slick, polished interface from the vastly under-rated Windows Phone platform to the desktop. Major hardware vendors are prepping a new generation of touch-enabled devices, from desktops and laptops to new ultrabooks and tablets, to take advantage of Metro.

The excitement surrounding the Windows 8 release as a consumer OS has been palpable, but many IT pros are lukewarm about the idea of bringing Windows 8 to the corporate desktop. Although Windows 7 has been an unqualified success for Microsoft, a large percentage of IT shops are still running Windows XP. Anemic IT budgets and legacy application compatibility problems are part of the issue. But several *Windows IT Pro* readers say that even XP is still "good enough" to do the job, despite Microsoft's sometimes over-zealous attempts to push XP into the grave.

I spoke to Charles King, principal analyst at Pund-IT, who suggested that Microsoft has three key obstacles with Windows 8 adoption in the enterprise. First is the closeness in release dates between Windows 7 and the upcoming OS. "Windows 7 was only released 2 years ago. From a business perspective, what is the value proposition to migrate to Windows 8 already?" King then mentioned that Windows 8 is designed to take advantage of a new generation of hardware devices—such as tablets and touch-enabled PCs and laptops—that haven't shipped yet in volume. "The demand for all of these devices [in the enterprise] is completely unknown. While many hardware vendors have great hopes for Windows 8, it's up in the air what the eventual desire for these devices will be." The final obstacle that King mentioned is a financial one. "The current global economic situation generates uncertainty in businesses of all



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sizes. When the economy gets uncertain or goes south, businesses lock down spending and purchase only what they truly need. That's partly why a sizeable number of businesses are still using Windows XP."

Microsoft recently touted some of the features of [Windows 8 Enterprise](#), including the "boot from a USB stick" capability of Windows To Go, VDI enhancements, and updated Windows 8 app deployment and software assurance changes. Yet many of the other features mentioned in the post are largely carryovers from Windows 7—namely DirectAccess, BranchCache, and AppLocker. The most troubling feature for many IT pros is the Windows 8 Metro interface, which might remain the default boot option for all Windows 8 clients—which is a concerning prospect.

"I can say without a doubt there's no way we'll roll out Windows 8 as it exists right now," [Windows IT Pro reader Dwight L.](#) recently told Paul Thurrott. "The fact that managing Win8 is essentially the same as managing Win7 doesn't matter...the Windows 8 Metro UI is completely unfamiliar, and for us would be a support nightmare."

Microsoft hasn't definitively said whether it will allow IT departments to force Windows 8 clients to boot directly to the traditional desktop interface rather than loading with the Metro UI option. Some Microsoft watchers (including [Paul Thurrott](#)) have learned that Microsoft is actively removing OS elements that would make it possible to easily enable a default desktop UI option on startup, so concerns about increased training and support costs to help end users navigate the new UI are valid.

Several IT pro shared similar concerns on Twitter. [@Fukawi2](#) told me, "I'm only just starting Win7 transition. Not enough IT resources to manage the transition or train users on the new (crap) UI." [@JField](#) said, "I deployed Win7 right away b/c my XP infrastructure cried out for an update. Win7 is still great, I can wait on this one...that said, I will definitely be installing it on my primary boxes. I want to tinker + I need to know it!"

On which side of the Windows 8 adoption debate do you and your IT department fall? I'd love to hear your feedback, so drop me a message on [Twitter](#) with your thoughts. ■

InstantDoc ID 143330

Letters

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Transend Documentation

In regard to Russell Smith's review of [Transend Migrator](#), Transend does provide white papers that are scenario-specific and that address the various steps of migrating between specific systems. Now, we obviously can't cover each and every scenario. But we do offer instruction for the most common scenarios, for both single-user migrations and batch migrations. And we even provide a more detailed Technical Reference Guide for the more popular migration scenarios as well. You can find [scenario-specific white papers](#) on the Transend website.

—Josh Krefetz for Transend

Although there are scenario-based white papers and Help files, as I mentioned in the original review, I do feel that they're not particularly well written. Also, still missing in action is a white paper for migrating to Office 365, which is likely to be a scenario many customers will be interested in. Overall, I still feel that the documentation for Transend Migrator could be improved.

—Russell Smith

LDAP Over SSL

I really enjoy reading *Windows IT Pro*, and I was particularly looking forward to Jan De Clercq's article "[Use LDAP Over SSL to Lock Down AD Traffic](#)," because we want to use this feature in our environment. However, I found that the article was short on explaining

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Comments

how non-Windows clients (e.g., Mac, Linux) will integrate with this solution if they are to use LDAP over SSL (LDAPS). A reference about how other OSs integrate with Microsoft solutions would have been helpful. Mixed environments are often a necessity these days. Also, regarding the use of LDAPS on Windows clients: Aren't those clients supposed to have a copy of the certificate used to encrypt the traffic? I didn't see anything mentioned in the article about how the clients are supposed to use SSL for encryption. Can you clarify?

—Ricardo Coto Oviedo

Thank you for the positive feedback! The article is indeed focused on how to set up LDAPS from Windows clients to securely connect to Active Directory (AD). However, the principles for setting it up remain the same for both Windows and non-Windows clients. Regarding the operation of LDAPS, clients just need to “trust” the certificate issuer of the server’s LDAPS certificate—which means that the certificate issuer should be a trusted certificate authority (CA) in the client’s certificate store. For the rest, everything—including server authentication and the exchange of the encryption key—occurs automatically as part of the SSL exchanges between client and server. Remember also that a client-side certificate isn’t required; it’s an option. Hope this helps!

—Jan De Clercq

Microsoft and the Dumbening of Technology

I appreciate the humor of Paul Thurrott’s article “[Microsoft and the Dumbening of Technology](#).” In some sense, every generation of technology is easier to use than the last. As technology advances, it becomes more accessible to more people with less technical knowledge. This is the natural order of things—to make the tools simpler and more accessible to more people. ■

—C. Marc Wagner

InstantDoc ID 143281

Windows 8 Release Preview

By the time you read this, Microsoft will have shipped its Windows 8 Release Preview, the final, publicly available pre-release milestone for its next desktop OS. (I'll be looking at a corresponding Windows Server 2012 Release Candidate version—don't ask about the disparity in naming—next month.) I'd been using several prerelease Preview builds of Windows 8—what I thought of, none too imaginatively, as “Release Preview previews”—for about a month before Microsoft finalized the set of Metro apps and capabilities that it would deliver in this milestone. One thing I came away impressed with was how much this release actually changed over that month. Not the underlying platform capabilities so much—those were finalized in early 2012, I was told—but rather the Metro-style apps that form the most obvious, user-focused aspects of the Windows 8 experience. This is a product that's been shined, evaluated, and then shined again, over and over in the weeks building up to this release.

As such, the Windows 8 Release Preview represents not just our clearest look yet at Microsoft's new OS but rather a version that should be largely indistinguishable from that final release. If you've held off evaluating this admittedly confusing and multi-focused new Windows version for some reason, now's the time to start. The Release Preview, for all intents and purposes, is Windows 8.

With that in mind, there are two ways to approach this release. First, one might consider Windows 8 as a whole, ignoring past commentaries and opinions and using the Release Preview as the sole arbiter, for now at least, in deciding the merits of this OS. Or, one could simply list what's changed since the Consumer Preview. Let's split the difference.



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Considering Windows 8 as a Whole

Looked at from a mile high, Windows 8 is very clearly a monumental release for Microsoft and one that will determine whether Windows will be a major player in general computing going forward or just a player. Let's be clear about where Microsoft has cast its lot: While some endlessly debate whether the Apple iPad and its Android-copycat-tablet ilk represent the computing mainstream of the future, Microsoft's actions in Windows 8 prove that the company has no doubts about the future of tablets. Windows 8 is its first real push in that direction and, arguably, the first time Windows has started off in the underdog position since, oh, the early 1990s.

Windows 8 features a new user experience and runtime environment called Metro that's technically now the OS and was clearly designed for multi-touch tablets and other devices. Microsoft calls this experience "touch first," while critics prefer the term "touch-centric." No matter, it's also perfectly serviceable with traditional mouse and keyboard interfaces. It provides full-screen apps that Microsoft says are "immersive," while power users will grouse, for good reason, that they're limiting, with only a passing nod to advanced multi-tasking features we've all come to expect. (The fact that Metro-style apps take the "windows" out of Windows, so to speak, is difficult for some to comprehend.)

Metro is new. It's different, it's scary for IT pros and tech enthusiasts, and it's only partially realized in Windows 8, to be honest. But it's the future, for better or worse.

Of course, Microsoft is still Microsoft. And while there are absolutely some bold bets in Windows 8, the company isn't foolhardy enough—or, shall we say, "Apple enough"—to throw out the baby with the bath water. So Windows 8 is still Windows. It still retains the desktop environment we've used since Windows 95, still runs all the same Win32-type desktop applications we all know and love, still utilizes the same driver models, and so on.

The weirdness to Windows 8—and let's be honest here, it is a weirdness—is that these two seemingly unrelated user experiences—Metro

and the desktop—coexist, side by side. You sign in to Windows 8 and arrive at the new Metro-style Start screen (see Figure 1), an app launcher with Windows Phone–like live tiles that replaces the application launching functionality of the old Start menu (gone in this release) and taskbar (which lives on in the desktop environment). Getting to the desktop, which is treated conceptually as an app, works similarly to any Metro-style app: You just click (or tap) its tile. The desktop works largely as in Windows 7, but without a Start button. That bit of extraneous UI has been replaced by a new, more consistent “Start tip,” which works in both Metro and desktop environments and is part of a series of Metro-style “edge UIs” that trigger other system-wide functions. (Those using touch-less systems can utilize mouse-based “hot corners” or keyboard shortcuts to achieve the same results.)



Figure 1
Start screen in
Windows 8

What's Changed Since the Consumer Preview

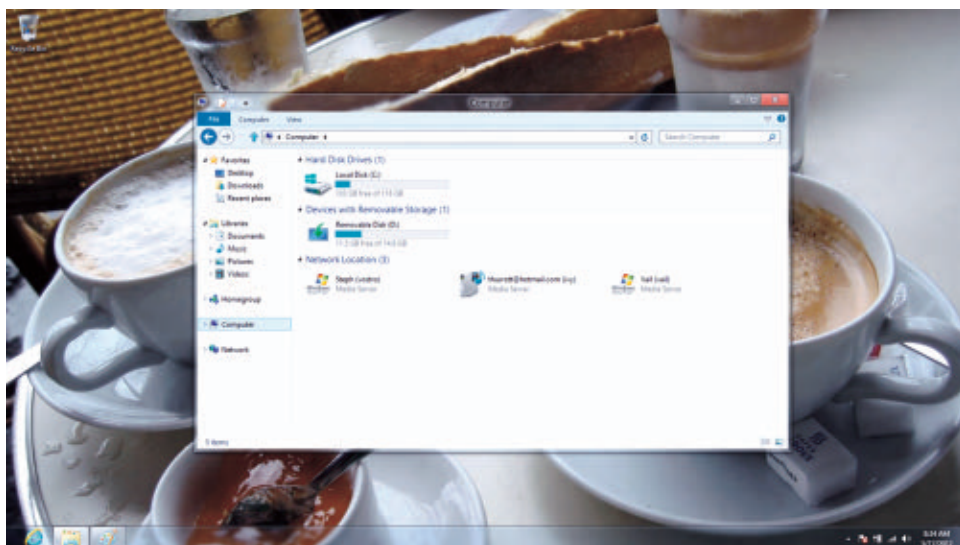
Two things have changed since the release of the Consumer Preview in very late February 2012. We've become far more accustomed to actually using Windows 8 and can make more educated comments about how it actually works. And Microsoft has refined the overall

system for the Release Preview and, more important, significantly overhauled the bundled apps—previously available in weak “app preview” form—providing us with a far more complete view of this.

With regard to usage, it’s a mixed bag. And my earlier hypothesis that users of traditional PCs (i.e., virtually every PC currently in existence) would stick to the more familiar, more desktop-like environment, while those few with tablets (today, that is) would tend toward the more immersive, full-screen world of Metro has been borne out. But the divide in users is a bit more nuanced than that.

Microsoft’s decision to fuse Metro and the desktop into a single system might be controversial, but it has certainly opened up some interesting possibilities (see Figure 2). That is, while traditional PC users have indeed stuck to the desktop by and large, nothing is stopping them from using the occasional Metro-style app or enjoying the live updating capabilities of the new lock screen and Start screen. Likewise, while tablet users will find the Metro experience more tailored to their device type, the ability to drop into the desktop and use a true Windows application like Microsoft Word or Adobe Photoshop is unparalleled in the tablet world. These machines could truly be a

Figure 2
Desktop in Windows 8



major leap forward compared to the iPad, which is limited by both its unyielding single form factor and Apple's relatively immature APIs. Windows-based tablets can do it all.

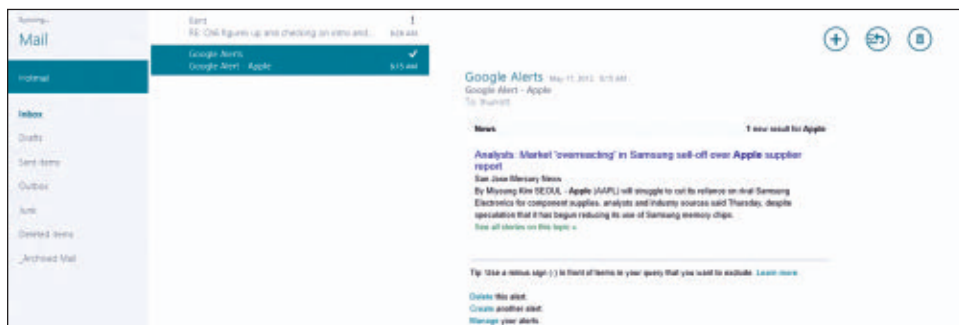
Looking at the Release Preview specifically, we see changes across the board. The system-level changes are minor, and evolutionary, as they should be at this stage of development. Microsoft has cleaned up Explorer to more closely resemble the UI it previously provided in the Aero Basic theme—sorry, folks, it's not Metro-like at all—and has made multi-monitor support smarter around Metro edge UIs and hot corners.

Look at the apps, however, and things get very interesting. First, and most broadly, the apps are more intelligent and utilize more system capabilities. That means that all of the major productivity apps—Mail, Calendar, Internet Explorer, Messaging—now fully support the new Windows 8 notification system. Likewise, more of these bundled apps can participate in another new Windows 8 feature, the Share contract—think “copy and paste” on steroids—so you can now do such things as share a photo from the Photos app via email by using the Mail app, or share a web page from IE via Facebook or Twitter by using the People app. With the Release Preview, Windows 8 is suddenly a nicely rounded system.

Apps are now colored-coded differently, so that the app tile color is used as the accent color in the app as well. Although my initial reaction is that Microsoft should provide a way for users to customize each app's color—some will surely decry the use of teal or other colors in, say Mail—I think there's a method to the madness: As you flip between the running apps, the accent color gives you a quick visual cue about which app is which, aiding your memory and letting you multi-task a bit more efficiently. It's just a theory.

Looking at individual apps, you'll find that virtually all of them have been overhauled in some way. The Mail app has gotten a nice visual refresh (see Figure 3), and more options bubble to the surface—well, to the app's app bar, anyway—in appropriate ways. For example, you can pin individual email folders (such as your work

Figure 3
Mail in Windows 8



Inbox) to the Start screen and access them individually. (This “deep linking” capability debuted previously in Windows Phone.) My only complaint here is that there’s no drag-and-drop functionality at all: If you want to move a message to a new folder, for example, you have to use a Metro-style selection, then access the Move command from the app bar. That’s not very efficient.

The Calendar app retains the three view styles we saw in the Consumer Preview—Day, Week, Month—but picks up a much-needed, Windows Phone–like way to determine which individual calendars are displayed from each calendar source (Microsoft Exchange/Office 365, Microsoft Hotmail, Google Calendar). You can also determine which color is used to denote individual calendars.

People, Windows 8’s contact management solution, has gotten a major overhaul this time around and now works much like the excellent People hub in Windows Phone. Its live tile animates a grid of contact pictures, which is pleasant, and inside the app you’ll find useful lists for People (a list of contacts, which can be filtered to show only online contacts), What’s new (social networking updates from your contacts, now nicely laid out), and Me, similar to the Me app in Windows Phone, which displays your own social networking updates, your (social networking) notifications, and posted photos. The Windows 8 IM app, Messaging, works with both Windows Live and Facebook Chat and can now hold messages for later delivery if a contact is offline.

Internet Explorer (IE) 10 has received a surprisingly major update, with a new feature called Flip Ahead that examines a site's paging structure and provides a way to easily move forward to the next "page" in a multi-page article. IE 10 also picks up a UI refresh, with a simpler app bar button structure and nicer in-place site search results. But the biggest change is that IE 10—get this—actually includes native Adobe Flash support. So much for embracing the standards-based web, Microsoft.

All of the other apps we know from the Consumer Preview, including Windows Reader, Finance, Bing Maps, Windows Store, Camera, SkyDrive, Photos, Music, and Video, have been updated as well. And surprisingly, Microsoft is shipping several new Metro-style apps in the Windows 8 Release Preview, though they're all very similar RSS-like apps that resemble Finance.

The new News app provides a gorgeous and locale-specific take on, yes, the news, with sources such as *The New York Times*, Reuters, CNET, the *Los Angeles Times*, and more. The new Sports app provides the same functionality—and look and feel—for sports, and it, too, supports many locales as well as an auto-refresh mode to keep the content up-to-date. Finally, there's a new Travel app, too, though I'm not quite clear on the point of it. It appears to offer basic information, in a pretty layout and presentation, about a handful of locations. In fact, it's almost a tech demo: Look, developers, at how pretty your apps can be!

The Final Analysis of Windows 8 Rests with You

Put this all together, and you can now judge for yourself whether Windows 8 is the next Vista or the next Windows 7. I'm leaning toward the latter, but I can see why those who support Windows for a living are a bit more tentative. Windows 8 is a big leap. Your job is to determine if it's a leap forward for your business or just a leap sideways. ■

InstantDoc ID 143130

More Control of **Active Directory Groups** through **PowerShell**

How to scour PowerShell's Help to discover time-saving tips



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In “[Searching and Managing Active Directory Groups with PowerShell](#),” I showed you a bunch of AD-related PowerShell commands related to AD groups: *new-adgroup* creates groups, *add-adgroupmember* adds accounts to a group, and *get-adgroupmember* retrieves user accounts that are members of a given group. This month, I want to extend your ability to use *get-adgroupmember* and I want to finish the column by showing you how I used PowerShell's Help to come up with a time-saving tip.

First, to round out your ability to manage groups, let's apply what you've learned in the past PowerShell articles. Once you know that you can create a new group with *new-adgroup*, you won't be surprised to learn that you can delete a group with *remove-adgroup*:

```
remove-adgroup folks
```

After you enter that command, PowerShell will ask you if you're sure you want to zap that group, and that's a good thing: Undeleting stuff in AD is a pain if you don't yet have the AD Recycle Bin enabled. If, however, you're very sure of yourself, you can always suppress the PowerShell confirmation question by adding *-confirm:\$false*, as in

```
remove-adgroup folks -confirm:$false
```

You can assume that there's a *remove-adgroupmember* command, given that you've already met *add-adgroupmember*. That's a reason why you should stick with learning PowerShell: The first few commands are a bit complex and even initially non-intuitive, but once you grasp the PowerShell way of thinking, it gets a lot easier to use it—and quickly.

Second, remember when I showed you that *add-adgroupmember* acts a bit unusually for PowerShell? As an example, I offered

```
add-adgroupmember folks user2,user3
```

which looks odd because PowerShell normally needs parameters with names, as in this alternative way to type that command:

```
add-adgroupmember -identity folks -members user2,user3
```

How did I know that I could skip *-identity* and *-members*? I took a close look at PowerShell's Help! By running *get-help add-adgroupmember -full*, you'll find a huge pile of information. Yes, it's tempting to just skip down to the examples, but take a moment to look at the text about the parameters. You'll quickly deduce that you're pretty much always going to need the *-identity* and *-members* parameters, so those are the ones to examine. The description for *-identity* partly looks like this:

```
Required? true
Position? 1
Default value
```

Those three items tell you a lot: You can't call *add-adgroupmember* without *-identity* (*Required? true*), it doesn't have a default value (no value after *Default value*), and then there's the most interesting of the three items, *Position? 1*.

In the case of 99 percent of the PowerShell parameters, that line says *Position? named*, meaning that you must use the parameter's

Your first few PowerShell commands might seem complex, but once you grasp the PowerShell way of thinking, it gets a lot easier to use it.

name, such as *-identity folks*. The rare case wherein there's a number means that you can certainly use a number as a named parameter, but alternatively if you just type the number as the first word after the command, PowerShell will treat it as if you'd typed *-identity* before it. Continue along and look at the Help text for *-members* and you'll see *Position 2*, which is how I knew that I could skip the named parameter on that one, also. Positional parameters don't appear often in the AD tools, but they're welcome gems when you do find them, so a minute's work in Help is often repaid.

Finally, some bad news: Once it retrieves a user object, *get-adgroup member* contains only about a dozen of that user's attributes. Furthermore, *get-adgroupmember* lacks a *-searchbase* option that would let us tell it to return only users from some subset of the domain's containers. By expanding on techniques I've shown you before, though, you can restore these functionalities to the cmdlet.

First problem: How do you retrieve the members of the group *folks* and their *lastlogondate*? Well, *get-adgroupmember folks* gets the members, but not their *lastlogondate*. We solved this problem for *search-adaccount*, and it'll work just as well for *adgroupmember*:

```
get-adgroupmember -r folks | get-aduser -properties lastlogondate
```

In this case, I grabbed the (incomplete) user accounts, then used the pipeline to retrieve those accounts again with *get-aduser*. Once *get-aduser* was in play, I could employ *-properties*—very nice, and not too inefficient, because dumping *get-adgroupmember* took only a short time, and (since it probably returns a fairly small number of objects) re-retrieving the accounts with *get-aduser* will usually be quite quick.

But what about the lack of *-searchbase*? How can I restrict my search to, say, users in just one organizational unit (OU)? I'll tackle that next month, when I'll show you once again that in the PowerShell world, there's usually more than one way to skin a cat! ■

InstantDoc ID 143094

SQL Server 2012 FAQs

Answers to the most frequently asked questions about SQL Server 2012

Without a doubt, Microsoft SQL Server 2012 is one of the biggest releases of SQL Server ever, and it definitely pushes SQL Server to a higher rung on the enterprise ladder. Like all new releases of a major server product, SQL Server 2012 contains many changes, enhancements, and new features. Anytime there are changes, there are also numerous questions. In this column, I'll answer some of the top FAQs about SQL Server 2012.



Michael Otey

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Email

① What are the SQL Server 2012 editions?

SQL Server 2012 is available in three primary editions: Enterprise, Business Intelligence, and Standard. The Enterprise edition contains all of the features in the product. The Business Intelligence edition contains all of the BI capabilities but lacks some of the higher-end availability capabilities. The Standard edition provides basic relational, BI, and availability capabilities. Microsoft has discontinued the Datacenter, Workgroup, and Standard for Small Business editions but will continue to provide the Developer and Express editions.

② What are the licensing changes with SQL Server 2012?

SQL Server 2012 has a new core-based licensing model. The Enterprise edition is licensed only per core, with a minimum of four core licenses. The Business Intelligence edition is licensed only per server. The Standard edition has the option of being licensed either per core (with a four-core minimum) or per server. There are also three versions of the free SQL Server Express edition. The Developer edition is also available; it's licensed per developer and can't be used for production work.

③ How does virtualization affect licensing?

You have two basic options for licensing virtualized SQL Server 2012 instances. You can license SQL Server at the virtual machine (VM) level or you can license all the cores in the physical server. At the VM level, you can choose server licensing or core licensing, where a core essentially equates to a virtual CPU. If you choose per-core licensing, that four-core minimum still applies. Alternatively, if you're planning to run several SQL Server VMs, you can license all the cores in the physical box with the Enterprise edition and Software Assurance (SA), which allows an unlimited number of SQL Server VMs.

④ Is it true that you can't move SQL Server VMs because of the licensing?

Yes, surprisingly, there are licensing limitations that restrict how often you can move a VM. If you don't have SA, you can move a SQL Server system only once every 90 days—which certainly isn't enough to keep up with Patch Tuesday. If your licenses are covered by SA, you can move your VMs as often as you like. SA is a requirement if you want to use SQL Server 2012 in a dynamic data center.

⑤ Is Business Intelligence Development Studio (BIDS) gone? What development tools for BI projects are available in SQL Server 2012?

BIDS has been replaced by SQL Server Data Tools. SSDT contains all the functionality of BIDS, plus it can be used for declarative database development as well as for developing SQLCLR projects. SSDT can be used with SQL Server 2012, SQL Server 2008 R2, SQL Server 2008, SQL Server 2005, and SQL Azure.

⑥ What is SQL Server AlwaysOn?

AlwaysOn Availability Groups is essentially the next evolution of database mirroring. AlwaysOn Availability Groups leverages AlwaysOn Failover Clustering, and it can protect multiple databases as a group.

AlwaysOn Availability Groups allows both synchronous and asynchronous database replicas, as well as active replicas. For a more in-depth look at AlwaysOn Availability Groups, you can refer to “[Microsoft SQL Server 2012: AlwaysOn Availability Groups Feature](#).”

AlwaysOn Availability Groups is essentially the next evolution of database mirroring.

⑦ What is Power View? Does it replace Report Builder?

Power View picks up the idea that was first introduced with Report Builder—enabling powerful end-user reporting—but doesn’t replace Report Builder, which is still present in SQL Server 2012. Power View is a graphical data navigation and visualization tool that’s designed to provide data insights by helping the user create reports over a BI Semantic Model. Power View reports can be embedded in your own applications, published to SharePoint, or included in PowerPoint presentations. Report Builder is still present in SQL Server 2012.

⑧ Is Hadoop a part of SQL Server 2012?

No. Hadoop is an open-source platform for processing unstructured data. SQL Server 2012 offers connectors for Hadoop. Hadoop itself is implemented separately from SQL Server.

⑨ Did the LocalDB edition replace SQL Server Express?

LocalDB isn’t SQL Server Express, nor is it SQL Server Compact. LocalDB uses the same sqlservr.exe engine as the other editions of SQL Server, but it runs in user mode—not as a service. LocalDB is used for offline development by tools such as SSDT to ensure that the code you develop is 100-percent compatible with your production SQL Server database.

⑩ Where can I find out more about SQL Server 2012?

Get more information about the different editions and features of SQL Server 2012 from Microsoft’s MSDN website. To try out some of these features yourself, check out the [SQL Server 2012 Virtual Labs](#). ■

InstantDoc ID 142951

The Strands of Your Identity Web

Understand the biggest components in your identity web and how they connect



Sean Deuby

is technical director for *Windows IT Pro* and *SQL Server Pro* and former technical lead of Intel's core directory services team. He's been a directory services MVP since 2004.

Email



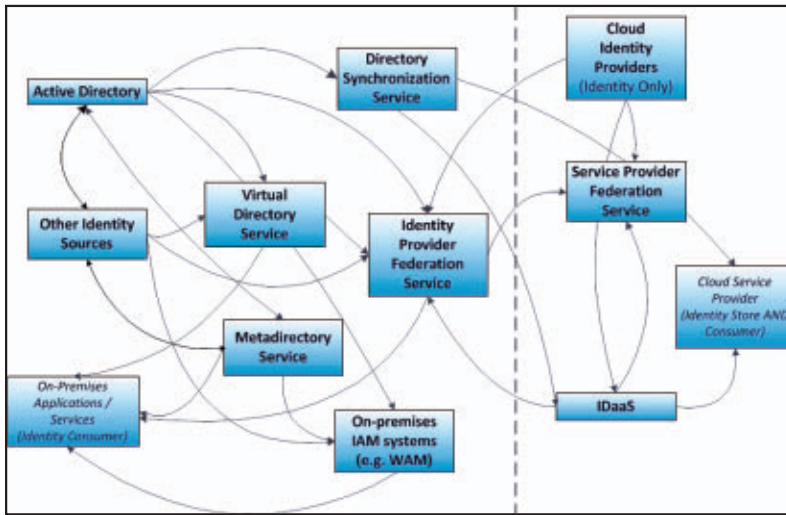
Twitter



One of the challenges that identity professionals face is that they rarely have to deal with just one identity system, such as Active Directory (AD). No, there's usually quite a collection of systems that provide identity inside your company, and often part of your job is to somehow tie all these systems together in some coherent manner for your applications to use.

And that's just for on-premises systems. With the dramatic increase in Software as a Service (SaaS) solutions, the number of applications that need identity information has grown far faster than most IT shops' ability to securely provide it. A successful identity professional needs to be able to link multiple identity providers of different types with all these services or applications—think of spaghetti strands—to provide a web of identity. Once that web is constructed, you must keep the flow of identities around the web working; it's a process a former colleague once described as “keeping the spaghetti wet.” This month, I thought I'd look at some of the biggest nodes in this identity web and where their spaghetti strands connect with one another. You might not have all these strands in your environment, but you certainly must deal with most of them, and there are also some that you should consider for your company's future.

Figure 1 shows these components and the typical data flows between them. This figure isn't intended to represent a production environment; for example, the identity provider federation service wouldn't have

**Figure 1**

Typical data flows in an identity web

inputs from both a virtual directory service (VDS) and AD, because the point of a VDS is to minimize identity connections. The idea is that you can look at each node and see what its typical inputs and outputs are.

Active Directory

AD remains at the base of most companies' identity infrastructures. It's a ubiquitous identity source in the enterprise. Around the world, AD is installed in (or is the central directory for) over 75 percent of companies with more than 500 clients. And it's slowly evolving to meet the needs of modern applications and services; Windows Server 2012 AD will support virtualization with no caveats, and it will introduce basic claims support. AD is the one application that any identity and access management (IAM) application must deal with, thanks to the sheer amount of investment in it and AD-integrated applications, not to mention its associated hardware, software, and process infrastructure. Add to that the widely held belief that identity should stay on premises, and you can see that a currently installed, on-premises AD implementation isn't going anywhere in the foreseeable future. AD is usually the source for a company's unique identities, such as security groups and computer accounts, but other

Once your identity web is constructed, you must keep the flow of identities around the web working.

objects (e.g., userIDs) and attributes (e.g., employee numbers) typically come from an “upstream” HR system.

Other Identity Sources

AD’s widespread use, however, doesn’t mean it’s the only identity source. HR systems are truly the most widely found identity stores in business; you can’t keep track of employees without one. Due to their sensitive nature, HR databases tend to be upstream of other identity stores and don’t commonly accept updates from them. Other identity sources—such as physical security databases that contain unique badge IDs or custom applications—might have their own unique identities with varying degrees of communication to an AD instance.

Metadirectory Services

Metadirectory services evolved as a way to aggregate objects and attributes from a wide variety of identity sources into a comprehensive metadirectory (sort of “one directory to rule them all,” if you don’t mind the *Lord of the Rings* analogy), which then updates these sources and other applications with the data they require. The value proposition of a metadirectory service is that when you use one, you can theoretically put any attribute from one identity source into any other, or make it available for any application. But that’s generally not a simple task to accomplish. Due to their cost of implementation and support, most metadirectories are found only in large enterprises. They fit right in the middle of the on-premises identity web, tying both identity sources and identity consumers together.

As I discussed in my March column, “[The Rise of Virtual Directory Servers](#),” a VDS is another way to present an aggregate view of objects and attributes from different identity sources. Instead of pulling identity data on a scheduled basis from these sources into a single large identity metadirectory, then pushing data out to a variety of locations in case it’s needed, a VDS creates a view into these identity sources. This view, which appears to the application as a single directory, is really

an abstraction. (Whenever you see the word *virtualization*, you should think “adding a layer of abstraction,” or “smoke and mirrors,” if you prefer.) When an application makes a query to this interface, the VDS makes queries in real time to the necessary identity sources (minus some sophisticated caching techniques) and returns the data to the application. Because of the abstraction layer the VDS provides, the application doesn’t need any fancy logic to determine to what source it needs to go to get attributes. VDS solutions are popular because they’re much simpler and cheaper to deploy than metadirectory services; they fit into the identity web between your company’s identity sources and applications that need to use those sources.

Many companies have well-established web access management (WAM) systems that any new identity solutions must integrate with. WAM solutions provide authentication and authorization from one or more identity sources for both internal and externally facing web services. The best-known use case is providing external access to a web service that resides on a corporate firewall. These on-premises systems are tightly integrated with multiple identity sources and don’t commonly use newer technologies such as VDS to simplify their integration.

Directory synchronization services have become a common solution when there’s a need to duplicate identity data from an enterprise identity store to a cloud service provider. A descendent of the metadirectory server’s synchronization engine, a directory synchronization service is a lightweight process installed on a server that monitors an identity store such as AD for changes and replicates those changes immediately up to its owning cloud service.

Federation

The last major component of the on-premises identity web as it stands today is the [federation service](#). This service stands as the bridge between shared-secret security protocols such as Kerberos (used in AD) and claims-based protocols such as Security Assertion Markup Language (SAML—used for claims-aware applications). A federation

service transforms tokens between different security domains and is an important piece of the web connecting you to cloud applications. In the identity web, federation services are connected to one or more identity sources and provide tokens to claims-aware applications on premises or to service providers in the cloud.

But federation doesn't necessarily have to be on your premises. You can outsource your federation service to an [IDaaS provider](#), which provides an intermediary that takes care of authentication and authorization to a wide variety of SaaS applications. Most services will also provide single sign-on (SSO) to service providers that don't support federation through their own proprietary methods.

Whether you work for an identity provider or a service provider depends on your viewpoint, of course. Although most of you probably support internal IT systems, a service provider that has a standalone identity store (e.g., separate accounts created on the service provider's site) for the users of its service is also an identity provider. And an enterprise identity provider that makes an application available for its business-to-business (B2B) partners is also a service provider.

If this situation weren't already complicated enough, other identity providers are entering the identity mix as well. Many consumer sites use Facebook, Google, Twitter, Yahoo!, and others to provide SSO; in the future, these providers will see more use in the enterprise (e.g., to provide SSO for customer service portals).

Look Forward

It's important to keep your existing systems running well, but it's equally important to look forward. You need to position your identity web to take advantage of these new technologies where it makes business sense. And the business case is sometimes based on a combination of factors such as information security and savings to individual departments—for example, moving from grass-roots, departmentally managed accounts for SaaS providers to a centrally federated approach. ■

InstantDoc ID 143099

FAQ

Answers to Your Questions

Q: What can you use the Notes field for in Microsoft Outlook forms?

A: Microsoft Outlook uses forms for inputting content into the message store. A new email message, contact, task, or appointment are all examples of Outlook forms. On several of these forms, there's an open field called Notes—which is not to be confused with the form for Outlook Notes. The Notes field can be found in Contacts, Calendar items, and Tasks.

In my experience, this field isn't often used in companies. Perhaps the other labeled fields provide all the necessary information needed for the Outlook item being created or amended. In a few cases, however, I've seen people use the Notes field, especially in Contact items, as a form of contact management system with references such as "Called on Dec 30, 2011. No Answer. Call back after holidays." One good use of this field I've seen is for recording a contact's Twitter address, because Outlook doesn't currently provide such a field.

I've used the Notes area for content that didn't fit in the default input fields for my own reference, but you can use it for many different things. The Notes area supports text, images, clip art, Smart Art, and shapes, including charts. In Figure 1, I copied some biographical



Mike Danseglio



Jan De Clercq



William Lefkovich



Avril Salter



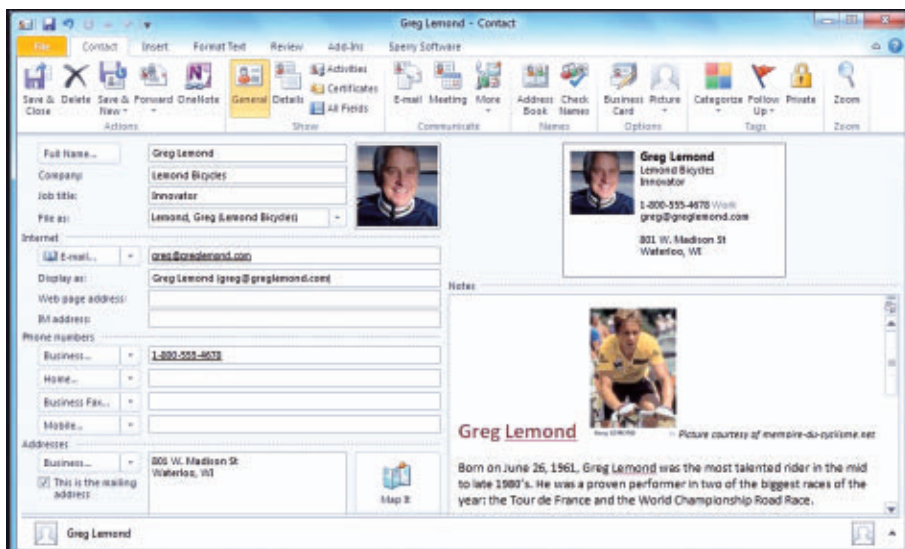
John Savill



Greg Shields

Figure 1

Using the Notes field for additional information on a contact



content from the web (in this case, from the Cycling Hall of Fame) as additional information on the contact.

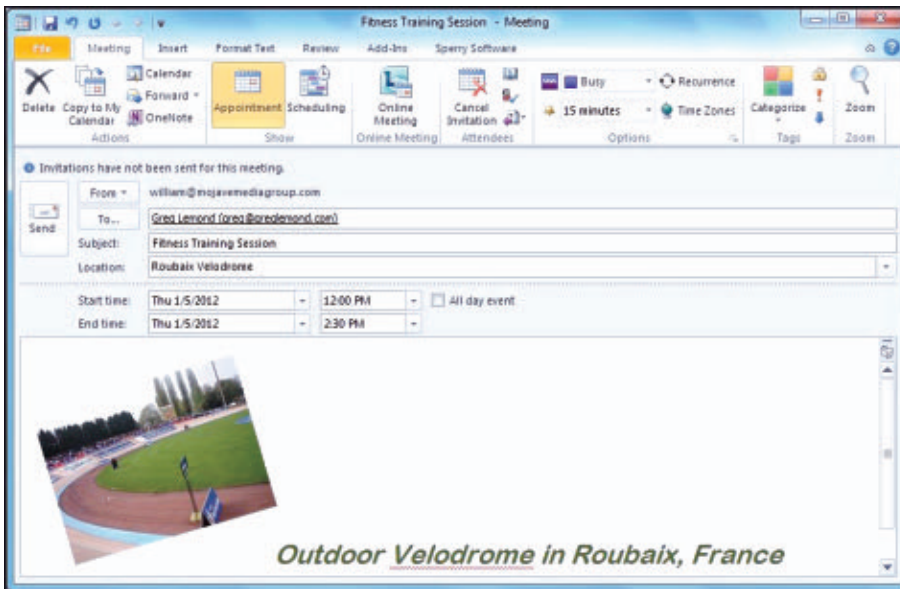
This is now stored within the Contact item in the message store for Outlook. You can also format text in the Notes area as you would in any basic text editor, including choosing the font, color, and size; highlighting text; inserting hyperlinks; and changing paragraph alignment.

The Notes field is labeled Notes in Contacts but is just an open space in Calendar items and Tasks. Still, the space can be utilized the same. Figure 2 shows a meeting request with an image of the meeting location. The Notes field obviously can be used to elaborate on the description within the typical fields of the appointment.

The Notes field in these Outlook forms is indexed by Windows Search. You can search Contacts, Tasks, or Calendar filtered for terms you included in the Notes field. This increases the value substantially as a tool for managing Outlook content. I have seen many users unaware of the versatility of the Notes area, and many people will find it useful to include content in the Notes field in support of Contacts, Tasks, and Calendar items.

Figure 2

A meeting request with an image in the Notes field



—William Lefkovic

InstantDoc ID 143050

Q: What are the new keyboard shortcuts for Windows 8?

A: Users who like using keyboard shortcuts will find many useful ones for Windows 8. Table 1 shows the new keyboard shortcuts specific to Windows 8.

—John Savill

InstantDoc ID 143059

Q: I suspect an employee is doing some monkey business on his Windows-based work computer. Can I investigate the activity? Where do I begin?

A: Generally, yes, you have the ability to investigate work-related activity on Windows-based computers at work. There's a

Table 1: Windows 8 Keyboard Shortcuts

Key Combination	Windows 8 Functionality
Windows key+spacebar	Switches input language and keyboard layout
Windows key+O	Locks device orientation
Windows key+,	Temporarily peeks at the desktop
Windows key+V	Cycles through toasts
Windows key+Shift+V	Cycles through toasts in reverse order
Windows key+Enter	Launches Narrator
Windows key+PgUp	Moves Start screen or Metro style application to the monitor on the left
Windows key+PgDown	Moves Start screen or Metro style application to the monitor on the right
Windows key+Shift+.	Moves the gutter to the left (snaps an application)
Windows key+.	Moves the gutter to the right (snaps an application)
Windows key+C	Opens Charms bar
Windows key+I	Opens Settings charm
Windows key+K	Opens Device/Connect charm
Windows key+H	Opens Share charm
Windows key+Q	Opens Search pane
Windows key+W	Opens Settings Search app
Windows key+F	Opens File Search app
Windows key+Tab	Cycles through MoSh apps
Windows key+Shift+Tab	Cycles through MoSh apps in reverse order
Windows key+Ctrl+Tab	Cycles through MoSh apps and snaps them as they are cycled
Windows key+Z	Opens App Bar
Windows key+/\	Initiates input method editor (IME) reconversion
Windows key+J	Swaps foreground between the snapped and filled applications

key question you need to consider before you investigate: Do you believe this “monkey business” involves a law being broken? If so, you should contact law enforcement before you do any research or investigation at all.

If you decide to move forward with your own investigation, the best place to begin is with an analysis of the behavior. For example, if you believe web surfing is involved, consider monitoring the user’s web activity from the proxy or router or deploying a Group Policy that configures Microsoft Internet Explorer (IE) to retain logs. If the user might be accessing data outside his or her defined role, auditing and network logging on the client and server are easy to set up through Group Policy and will quickly reveal the truth.

One of the biggest investigation targets I see is based on complaints of users wasting time on personal websites, games, and other non-work activities. My suggestion here is generally to have a discussion with the employee before monitoring his or her activities. More often than not, the behavior stops with a strongly worded caution.

—Avril Salter, Mike Danseglio

InstantDoc ID 142431

Q: How can I change the number of concurrent users who can perform remote operations using WS-Management on a computer?

A: Typically, a computer allows five concurrent users who can perform remote operations using Web Services for Management (WS-Management). This includes users running remote Windows PowerShell. To change the number of users to any number between 1 and 100, use the following command:

```
Set-Item WSMan:\localhost\Shell  
    \MaxConcurrentUsers 25
```

where 25 is the user number. To check the current value, use the following command:

```
Get-Item WSMAN:\localhost\Shell\MaxConcurrentUsers
```

—John Savill

InstantDoc ID 142720

Q: Can I use the Windows Time service for applications that require accuracy within a second?

A: The Windows Time service that is part of the Windows OS is designed to ensure systems are time-synchronized enough for Kerberos authentication to work, and for basic time synchronization as outlined at the Microsoft Support article “[Support boundary to configure the Windows Time service for high accuracy environments](#).” This time synchronization doesn’t ensure time is synchronized within a couple of seconds, which some applications require, and is therefore not suitable for them. If you require synchronization within a second or two, then you should use third-party time synchronization solutions such as those listed at the [National Institute of Standards and Technology \(NIST\) site](#).

—John Savill

InstantDoc ID 142784

Q: Because I’m using a Citrix solution, do I need a Remote Desktop Services Client Access License?

A: A Remote Desktop Services (RDS) Client Access License (CAL) is needed whenever any component of the Remote Desktop Service (or formally, Terminal Services) role is used. This could be an actual Remote Desktop Session Host (via Terminal Server), it could be RemoteFX running on Hyper-V attached to a virtual machine (VM),

the RD Connection Broker, or any component. The two main Citrix solutions I want to focus on are XenApp and XenDesktop.

XenApp is a session virtualization technology that delivers either a desktop or just an application that's running on a remote server OS. Because XenApp is built on RDS, the RDS CAL is required for every device or user that uses XenApp.

XenDesktop is Citrix's Virtual Desktop Infrastructure (VDI) solution that uses pure Citrix components. No RDS role services are used, which means that for a pure XenDesktop solution, the RDS CAL isn't required. But there is a caveat. While XenDesktop doesn't require the RDS CAL, it's very common that XenDesktop deployments also use XenApp to deliver applications to the VDI desktops. If the XenApp capability is used with XenDesktop, then the RDS CAL is required.

—John Savill

InstantDoc ID 142995

Q: How can VMware Player be useful for employee VPN connections?

A: Depending on which remote-connection solution you use, working from outside the office can be a pain. Many VPN solutions cut off connectivity to local network resources as soon as a VPN connection is established. With others, the multistep process to make the connection and ultimately find the on-the-LAN resources you're seeking gets cumbersome. One inexpensive solution that can aid users outside the network gets an assist from the no-cost VMware Player.

Here's how it works: Create a template virtual machine (VM) using either VMware Player or VMware Workstation. Include in this VM any software and scripts that set up your VPN connection. When ready, power down the VM and make it available for users to download. By creating and distributing preconfigured VMs that are equipped to automate the VPN connection process, you can deliver to users a ready-to-go desktop for remote situations. Because this desktop exists

as a separate VM, its VPN connection won't necessarily disable connections from the user's primary desktop. Better still, by having users connect via a preconfigured VM, you retain better control over the OS instances that connect into your internal network.

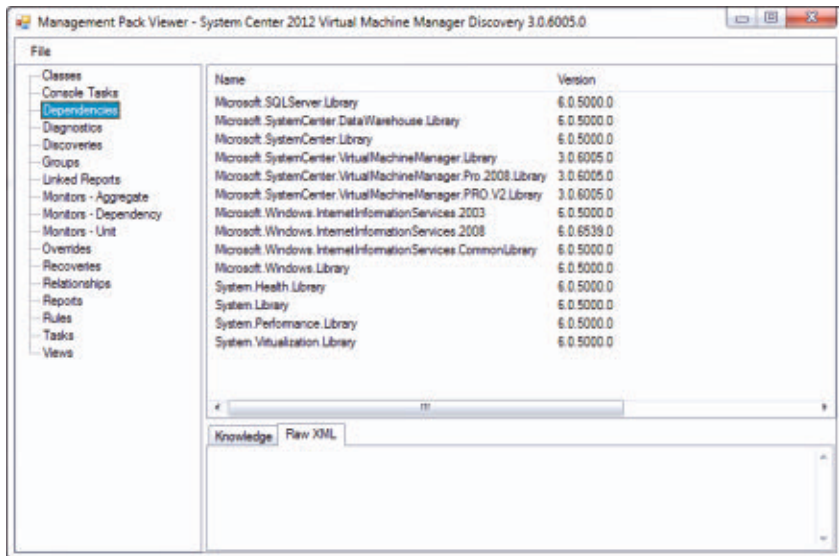
—Greg Shields

InstantDoc ID 141911

Q: How can I see the dependencies of a management pack?

A: Many management packs have dependencies on other management packs. An easy way to check is to download the MPViewer from the [MSDN blog of Boris Yanushpolsky](#). After you

Figure 3
MPViewer
screenshot showing
dependencies in a
management pack



install it, select a management pack and it will show full information including any dependencies (see Figure 3).

—John Savill

InstantDoc ID 143055

BYOD Security

Bring your own device—but secure it first!

You've probably sat in a meeting with your CIO or CFO and heard about the business benefits of the "Consumerization of IT." Advocates for this practice, also known as Bring Your Own Device (BYOD), say that workers are more productive when using devices with which they're more comfortable. Proponents also say that real cost savings can result from allowing users to connect their own devices to the corporate network, by eliminating the need to buy cell phones and tablets for each user and by reducing calls to IT Help desks as people use familiar devices. Managers might believe that employees who use their own personal devices to connect to corporate email systems, websites, and document management systems are more likely to be available outside of normal business hours and thus to work more than their colleagues. Even your HR department might be a proponent of BYOD because it helps to attract and keep younger talent fresh out of college. It might cite studies and reports



**John
Howie**

is the COO of the Cloud Security Alliance.



Email



Twitter



LinkedIn

that younger employees expect to work where and when they want, with the tools and devices with which they feel most comfortable.

Similar to BYOD is shared ownership of devices, in which employees are given a budget to buy a cell phone or tablet of their own choosing for work purposes but can also use it as a personal device. Emerging evidence indicates that shared ownership results in fewer lost and broken devices because employees are more likely to take care of these items, especially when they do double duty as primary personal devices. However, for all the potential benefits, there are certainly pitfalls and issues that enterprises of all sizes must consider before openly accepting and promoting BYOD. In fact, there is a strong chance that some employees in your organization are practicing BYOD surreptitiously and potentially in violation of policy. Such folks might already have connected their personal cell phones and tablets to your enterprise systems, placing the enterprise at risk.

Risks of BYOD

Over the past few years, organizations have gone to extraordinary lengths to ring-fence and defend their most valuable data assets against loss or theft. This effort is due in part to an explosion of concerns about privacy, the passing of data-breach notification laws, and corporate espionage. Many organizations have invested heavily in Data Loss Prevention (DLP) technologies and regularly review who has access to data, when they access that data, and for what reason. Unfortunately, BYOD-related activity can quickly render DLP solutions and access reviews useless, and organizations can find out far too late that they have suffered a data breach.

Consider the Apple iPad, which increasingly turns up in conference rooms and meetings, regardless of whether BYOD is sanctioned or whether your organization has a policy to manage the use of personal devices. A user might open a document attached to an email message that was sent to a corporate email account or might download a document from a Microsoft SharePoint site, and then

use Apple iWork Pages to open that document for use in a meeting. The iPad automatically syncs the document to Apple's iCloud, and the document is then available from every iOS device that the user owns, including iPhone and iPod touch devices (and soon, Macintosh computers). The document is available from the iCloud website when the user logs on from any PC or Mac. If the document contains any personally identifiable information or other sensitive data (e.g., unreleased financial data) and if the user loses an iCloud-connected device or if the user's iCloud credentials are compromised, your organization might need to notify authorities, partners, and customers. Just the fact that the document is no longer under your organization's control could be grounds for breach notification.

The problem isn't unique to Apple mobile devices. Employees with Windows Phones, Android tablets and phones, and other devices can pose similar risks by using these devices to access enterprise data, especially if their use isn't managed and monitored.

A common concern across all devices is whether user data that is stored on the device, including data downloaded from enterprise email and document management systems, is encrypted to help prevent access by unauthorized individuals. Other concerns are whether the device includes a removable media card, such as a Micro SD card (some of which can store as much as 64GB); whether data can be stored on the cards; and whether the card is encrypted and paired to the mobile device so that it can't be inserted into another device and its contents accessed.

Another issue that must be considered is how to disable and wipe devices that are lost or stolen or that belong to employees who quit or are terminated, especially if those devices contain sensitive data.

Other risks can come with BYOD-related activity, and more will likely emerge over time as these devices become more powerful or are updated to new software releases with new features. The only way to manage risk is to establish a BYOD policy, put it in place with appropriate controls, and monitor it.

You're highly unlikely to prevent employees from using their own devices. Accept that fact...and take appropriate steps to manage the risk.

Creating a BYOD Policy

I recommend that all organizations, even those that don't intend to allow employees to use their own devices to access enterprise systems and data, create a BYOD policy. I'll be candid: Despite your best efforts, you're highly unlikely to prevent employees from using their own devices. Accept that fact, allow employees to use their devices, and take appropriate steps to manage the risk.

What should your BYOD policy consist of? Consider the audience for the policy. Few end users of IT services—your employees—are likely aware of your organization's policy, even if they're required to acknowledge and adhere to it. What employees know about what they may do with corporate assets—including computers, email systems, and data—they usually get from awareness training, colleagues, and their own sense of propriety. A policy is typically used only by managers, lawyers, and HR staff when dealing with compliance obligations, data breaches, and gross violations of policy. For this reason, I recommend that your BYOD policy be high-level and provide general guidelines rather than specific details.

For example, the policy might state that only approved devices (as determined by the IT department) can be used to access corporate systems and networks that contain certain categories of data (as authorized by the legal department). The policy might also state that the organization reserves the right to manage the devices remotely, including wiping and inspecting them. This last part is extremely important, and you should have your legal department review the terms. Without a policy statement that says the organization can manage employees' personal devices when they are connected to the corporate network or used to access corporate information, your organization might find itself in court defending its actions after remotely wiping a terminated employee's cell phone, which contained holiday pictures along with confidential corporate information!

After putting the high-level policy in place and making your employees aware of it, the next steps are to determine which systems

and data your employees are allowed to access from their personal devices and which device makes and models employees can use. Separating these details from the actual policy and placing them into standards and guidelines allow you to update them later, without the approvals that are usually necessary for a change in policy. Standards and guidelines are usually written without the legal language of policies, making them more understandable and more likely to be adhered to.

Determining Accessible Systems and Data

Rushing into a definition of which personal devices can be used is tempting. But first, consider the systems and data that can be accessed. When you perform a risk assessment, you focus on the asset value (usually the collected, held, and processed data) in determining security controls. In the same way, you need to start with the systems and data to determine which security features the accessing devices must support.

Try to avoid the rush judgment that some systems and data (e.g., email systems) are safe to access from personal devices. Email might be the most commonly used means of distributing information between employees, and most of it might seem routine. But it can be used to convey highly sensitive information, such as personnel matters, financial information, and customer details. Any of these pieces of information might require your company to follow breach-notification rules if a device containing them is lost or stolen.

The simplest approach is to turn to your asset classification policy, assuming you have one. Most organizations define levels of classification—such as Low, Medium, or High Impact—arising from the loss, disclosure, or destruction of the asset. Low Impact data is typically public information, such as online sales systems, published price lists, parts databases, and the like. Medium Impact data usually includes project planning schedules and reports, sales forecasts and reports, most non-routine email messages, and source code to in-house

developed line of business (LoB) applications. High Impact data is typically regulated data or data that, if lost, would result in significant loss to the organization. Examples of High Impact data include personally identifiable information about employees and customers, protected healthcare information, confidential product plans, and revenue projections and forecasts for publicly traded companies.

A decision to permit access from personal devices to Low Impact data and the systems that process it is probably acceptable. Access to Medium Impact data, which would include email, can be more problematic. Still, with the right access-control features on personal devices, access to some or all of this data might be acceptable. This is especially true if you use other technologies, such as Secure MIME (S/MIME) encryption or Active Directory Rights Management Services (AD RMS) and Information Rights Management (IRM), to protect sensitive email in the environment. You likely won't want to permit access from personal devices to High Impact data. For executives and other employees with a need to access this type of data from phones and tablets, consider issuing devices that are locked down to meet the most stringent requirements.

Defining BYOD Standards

When you have a list of data that you're willing to permit employees to access from personal devices as well as the systems that host or process that data, you next need to define device standards. Device standards are simply the software, features, and controls that must be present on personal devices to access enterprise data. In defining these standards, look at the standards that you have in place for the existing systems and networks that host and process the data. These standards should be met or exceeded on the devices that your employees will use. Focus on areas such as identity and access management, encryption of data at rest and in transit, encryption algorithms and key lengths, endpoint security, data loss prevention, and so on.

Of increasing concern is the ability to keep the software on mobile endpoints current. Recent research has shown that many devices, especially those shipped by mobile phone operators (often as part of a one- or two-year service contract), aren't updated to address known vulnerabilities. Even when updates are available, evidence strongly suggests that device owners and users are unaware of the availability of updates or of how to apply them. When considering device standards, you need to be aware of the software revisions that are available for the multitude of devices (e.g., the various versions of the Android OS, tailored for each handset and tablet manufacturer) and the vulnerabilities in each. This knowledge will help you define minimum acceptable software versions that must be in place.

Although your focus should be on features and controls that must be in place to allow a particular device to access enterprise resources, you can't ignore how owners and users of these devices will use them away from work. For example, which applications will the user install, and will those apps have access to your corporate data? A typical example is an application downloaded from an online app store supported by the device manufacturer. What if the app has access to contact lists on the device and a contact list is synchronized with your corporate email system—which contains the names, addresses, and other personally identifiable information of your employees and even some customers? You must consider how to restrict access to that data to approved applications only, and what to do if a device doesn't support this feature. You might need to prevent employees from installing some or even all applications on their personal devices, or permit them to install applications on a pre-approved list. If employees are allowed to install applications on their personal devices, then consider a means to ensure that those apps are updated with releases that address discovered vulnerabilities.

When you have identified the features and controls (i.e., standards) that must be in place on devices, the next step is to identify the devices that support those standards. This step isn't as easy as you

might hope, given the multitude of devices and software versions in existence. You typically need to visit each manufacturer website and spend time looking for details for each device. Some manufacturers, such as Apple, provide enterprise and business features and integration information (see [Apple's business webpage](#)); others don't.

Managing Devices

After you have created your policy, identified the data and systems that can be accessed by personal devices, and identified which devices can connect to your enterprise network, you need to find a way to manage those devices to ensure that the policy is adhered to and standards met. You also need to ensure that you can track the use of personal devices to access enterprise resources and data. And you need the ability to remove data or decommission lost or stolen devices, as well as devices that belong to employees separated from the company. This is often the most challenging aspect of implementing a BYOD policy.

The good news is that if you have Microsoft Exchange 2010 and you choose to allow devices to connect to your email system, you have a rudimentary management toolset that can allow, deny, or quarantine devices; allow connections to corporate networks and systems based on basic characteristics such as strong password or device encryption capabilities; and apply policies to enable each. The bad news is that this toolset requires devices to be honest when reporting device characteristics and capabilities and to actually enforce the policies that are pushed down. In the past, some devices that were purported to have these characteristics and capabilities didn't. Hackers can also take the protocols that the Microsoft Exchange ActiveSync (EAS) service uses to manage devices, and mock up devices that don't honor policies and can be used to extract data from your organization.

Companies such as Research In Motion (RIM) and Apple provide tools that enterprises can use to manage their products. These companies typically allow the enterprise to create policies that can be

distributed to devices by email or some other means and to restrict users' ability to adjust or remove those policies. These tools are free, or can be used for free by small-to-midsized businesses (SMBs). The problem is that if you choose to support multiple device manufacturers and different versions of devices and software, managing each in silos quickly becomes infeasible, especially in a large enterprise environment or one in which end users have multiple devices that they exchange or upgrade frequently. In such environments, you need to invest in a mobile device management solution. The major solution providers support multiple devices from all major manufacturers. A note of caution, however: These solutions can be complex and overwhelming, although they typically come with enterprise-class features such as VPN solutions and sophisticated monitoring and reporting tools.

Bringing It All Together

BYOD is fast becoming an employee expectation. However, it brings high risk to the enterprise if it isn't managed carefully. To minimize the risk, organizations need to create policy surrounding the use of personal devices to access enterprise systems and data. Make employees aware of this policy and provide appropriate training that covers what is and isn't acceptable. Organizations need to determine which data and systems personal devices can access, and how. The classification of these systems can be used to identify device capabilities and characteristics, which will determine which devices employees are permitted to use. Lastly, the organization needs to use a toolset to create and enforce technical policies on employee devices and to remotely manage and wipe lost or stolen devices or those that belong to employees separated from the organization. ■

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Enabling the Private Cloud with **System Center VMM 2012**

Take virtualization management to the next level



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Microsoft System Center 2012 represents the unification of the System Center family of products. These products were previously part of a suite but all ran on their own release schedules and didn't really provide rich interaction. In System Center 2012, we get a single product that consists of several components that have rich integration, primarily through System Center Service Manager 2012 and Orchestrator 2012, which provide a complete data center and desktop management solution.

All the components in System Center 2012 have had major enhancements, but System Center Virtual Machine Manager (VMM) 2012 has grown the most. VMM now offers numerous new capabilities and improvements. Is your organization thinking about implementing a private cloud, enabling Infrastructure as a Service (IaaS) with end-user self-service and managing heterogeneous, geographically distributed data centers through hypervisors? Then using VMM 2012 for storage, networking, and streamlining your virtualization management is going to be a delight. At the same time, all the features you expect (based on previous VMM versions), such as physical to virtual (P2V), virtual to virtual (V2V), large farm management, templates, and so on, are still available—and enhanced. In this article, I'll focus on some of the major new functionality in VMM 2012.

Managing the Computer, Storage, and Network Fabrics

To provide a virtualization service, three building blocks must be present. The following factors make up the underlying fabric of the virtual infrastructure:

- compute—physical servers and the hypervisors that enable the creation of virtual machines (VMs)
- storage—SANs and other disk resources
- network—physical topology, virtual LANs (VLANs), IP addressing, and hardware load balancers

The fabric of your organization might be divided up among multiple data centers and technologies. Many organizations have a mix of hypervisors, such as Windows Server Hyper-V, VMware ESX, and Citrix XenServer; different SAN vendors; and a variety of network hardware and configurations.

Previous versions of VMM did a great job managing Hyper-V environments but lacked the ability to manage other hypervisors and gave no real visibility into or management of networking or storage. I can hear some of you correcting me: “VMM 2008 can manage ESX!” My response is that *technically* VMM can manage ESX VMs, but that doesn’t mean anyone really used it that way. VMM 2008 takes ESX templates from VMware vCenter, deleting them from vCenter in the process. Then, when you want to deploy a template to ESX, copying the template from VMM to ESX took such a long time as to make the template fairly unusable. And there were many other limitations.

VMM 2012 works with vCenter. Now, VMM imports template metadata from vCenter, allowing visibility of the template configuration and use of the template through VMM 2012, but it also uses vCenter to deploy the templates, providing a fast and efficient experience. VMM 2012 adds direct management support for XenServer VMs through a System Center Integration Pack that is installed on the XenServer. The use of the System Center integration pack on XenServer removes the need for VMM to manage via XenCenter, which is the XenServer equivalent of VMM.

Storage and networking fabric integration is a huge addition in VMM 2012, giving real visibility and manageability.

Virtualization hosts running any supported hypervisor can be distributed in the VMM hierarchy. This capability gives you a means to separate management and use according to organizational needs (e.g., location, business unit) instead of being bound by the type of hypervisor that the server is running. At release to manufacturing (RTM), VMM 2012 will support Hyper-V in Windows Server 2008 R2 or earlier, ESX 4.1 or earlier, and XenServer 6. At the time of this writing, the technology preview of VMM 2012 Service Pack 1 (SP1) supports Server 2012 Hyper-V and enables management of some of the new Server 2012 Hyper-V capabilities, such as network virtualization and Server Message Block (SMB) 2.2 file shares. Support for ESX 5.0 is on the roadmap for a future update.

Storage and networking fabric integration is a huge addition in VMM 2012, giving real visibility and manageability. This change was required for three reasons:

- Virtualization administrators often want visibility of underlying storage to understand the best configuration and available resources.
- Organizations have multiple data centers in different locations, so an abstraction of the physical fabric is required to ease management and to deploy services quickly in a distributed environment.
- Self-service and a shift to applications and multi-tiered services require the management infrastructure to provision underlying fabric resources. This process includes provisioning of not just the required VMs but also of storage on the correct SAN, based on the requesting users' storage preference and VM location. The process also includes connecting VMs to the correct switches to ensure network connectivity. After the VM is connected to the network switch, the VM guest OS must be configured with the correct IP address and VLAN configuration. In addition, provisioning of fabric resources might include configuration of hardware load-balancing equipment, on behalf of the user.

VMM adds both network and storage-fabric visibility as well as different levels of manageability. On the storage side, VMM can be connected to SANs that support the new Storage Management Initiative Specification (SMI-S) industry standard, by importing the SMI-S provider for the SAN into VMM, adding SANs to VMM, and then classifying the various LUNs and aggregates into whichever tier definitions work for your organization. Gold, silver, and bronze storage tiers are typically used to represent performance and redundancy, giving you an easy way to select the type of storage that you need for different applications. Figure 1 shows a basic view of a single SAN with only a few LUNs. This same view is available for complex environments with many SANs and hundreds of LUNS. When storage is used as part of a new VM creation, VMM can automatically select the appropriate LUN, based on the requested storage tier, the requested location, and the required amount of space. For Hyper-V servers, VMM connects to

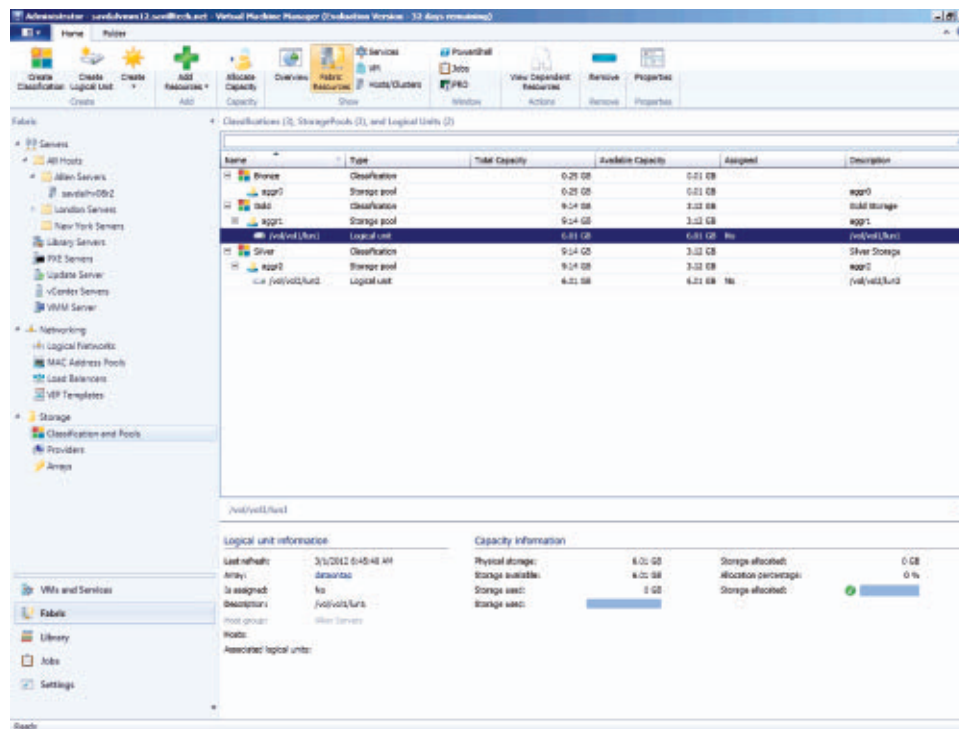


Figure 1
Basic storage view

the host, performs the iSCSI initiator configuration so that the host is connected to the SAN and LUN, creates the necessary volumes, and performs any zoning on the SAN to ensure that the right nodes have access. A similar process is available for Fibre Channel-connected SANs, but automatic zoning is not performed (although it is on the roadmap for a future VMM release). The administrator can easily view the state of all connected storage and can perform some basic storage management.

On the network side, imagine that you have five data centers. Each data center has a number of networks, such as backup, production, test, and demilitarized zone (DMZ). For each network in each location, there are different IP and VLAN configurations. VMM allows you to define logical networks, such as production and backup, and then define various sites (e.g., London data center, Dallas data center) for each logical network, with each site having its own IP and VLAN configuration.

As part of the site configuration, you can also configure a pool of IP addresses that are owned by VMM. When a new VM is created and connected to a defined logical network within a site, VMM automatically configures the new VM with the right VLAN and a static IP. VMM checks this IP out from its pool during VM provisioning, by updating the Sysprep file of the VM. Although DHCP could handle this process, most organizations prefer to use static IP configurations for servers; by using VMM IP provisioning, administrators get the best of both worlds. In addition to providing VLAN and IP configuration based on network and location, VMM can connect to hardware load balancers such as F5 Networks BIG-IP and automatically perform configuration when a load balancer is needed as part of a multi-VM service deployment. See the video on page 51 to see this in action.

VMM 2012 introduces many more capabilities to manage the Hyper-V virtualization hosts, with the aim of providing one tool to create, maintain, and manage your Hyper-V environment. VMM 2012 integrates with both Windows Deployment Services (WDS) and



Automatic IP
configuration

Windows Software Update Services (WSUS) so that you can deploy Server 2008 R2 with Hyper-V to bare-metal boxes, perform configuration, and keep the servers patched.

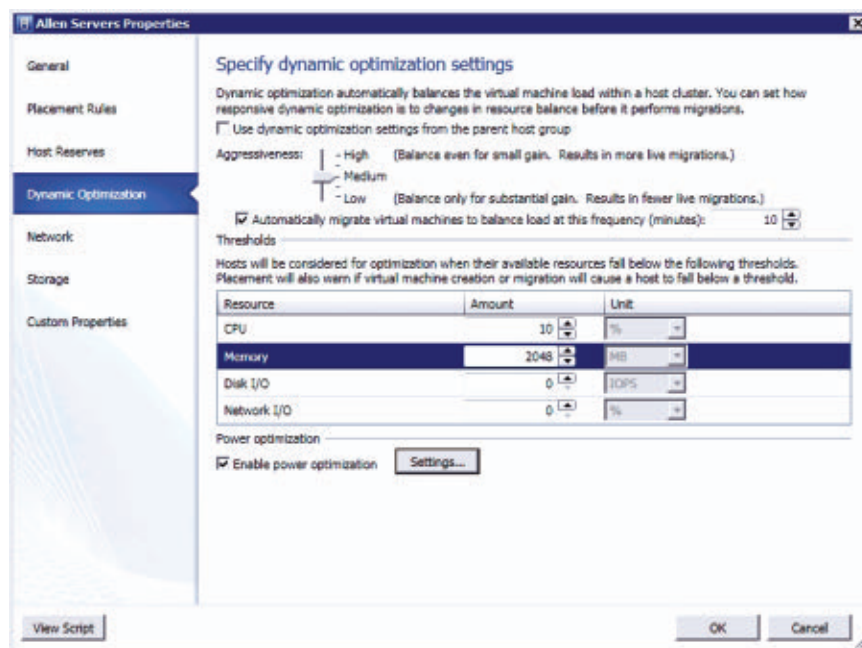
The patching integration with VMM 2012 adds a new capability. With one mouse click, you can patch an entire Hyper-V cluster. VMM 2012 can evacuate all VMs from one host by using live migration (meaning no downtime to the VM), patch the host, reboot, verify the host's health, bring the VMs back, and then move to the next host, where it repeats the process. An entire cluster of Hyper-V hosts can be patched with no downtime and basically no administrative effort. This patching is for the Hyper-V hosts only; the patching capability is not for the VM guest OSs. System Center Configuration Manager, also part of the System Center 2012 product, does a great job of patching guest VM OSs. Another interesting capability in VMM 2012 is the ability to run custom commands and scripts on Hyper-V hosts through the VMM console, providing an easy remote-administration capability.

Performance Resource and Optimization (PRO) is a VMM 2008 R2 feature that allowed automatic balancing of VM in a Hyper-V cluster

via integration with Operations Manager. This balancing is based on resource utilization, similar to VMware Distributed Resource Scheduler (DRS). VMM 2012 still has the PRO feature, which enables third-party extension capabilities to the distribution logic. Through PRO integration, VMM can monitor and correct anything that can be defined in an Operations Manager Management Pack. Imagine the scenario in which storage might be failing. Operations Manager can detect this problem and then use VMM to evacuate VMs off the failing storage, all via PRO integration.

There are also two new capabilities in VMM 2012—Dynamic Optimization and Power Optimization—neither of which requires Operations Manager. Both optimization technologies are reactive and work on defined thresholds to trigger the movement of VMs. Dynamic Optimization allows thresholds to be configured for CPU, memory, disk, network, and the aggressiveness of the optimization, as Figure 2 shows. As hosts cross the thresholds, VMs are moved to return the hosts to the target utilization, balancing VMs between all hosts in a

Figure 2
Configuring Dynamic
Optimization



cluster. Power Optimization does the opposite: It tries to consolidate VMs onto fewer hosts, provided that the consolidation won't push the utilization of the remaining hosts over a specified threshold. This allows the remaining hosts to be powered down, saving power, and woken up over the network when needed. You can configure specific hours so that Power Optimization occurs only outside of peak hours (e.g., only at night).

More to Come

You probably noticed that I didn't talk about the VMM self-service interface. VMM 2012 has a self-service portal, but it hasn't really changed from the in-box portal in VMM 2008 R2—which means that it isn't something you should use for real end-user self-service. The true self-service portal power is delivered through System Center Service Manager and System Center AppController, which are part of System Center 2012.

Nor did I talk about enabling a private cloud with VMM 2012. VMM provides the majority of the functionality that's required to enable a private cloud in an organization, relying on many of the technologies that I've covered, such as full fabric management including logical networks and storage management, heterogeneous hypervisor support, and provisioning and maintenance of Hyper-V clusters. VMM introduces the concept of clouds of resources, which form the foundation of a private cloud. In a future article, I'll discuss how to expose the private cloud in your organization—after I share two key aspects of VMM 2012: Server Application Virtualization and Services Modeling, which I'll tell you about in the next article in this VMM 2012 series.

VMM 2012 provides a powerful virtualization management platform with a vast amount of new technology to explore and master. When VMM is fully exploited in your organization, it won't only make management of your data center virtualization easier, it will also enable new capabilities such as user self-service and that big fluffy private cloud. ■

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Search and Destroy Email Content with Exchange 2010

Use the Search-Mailbox and New-MailboxSearch cmdlets to clean house



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Multi-mailbox discovery searches receive a lot of headline attention when discussion turns to the features of Microsoft Exchange 2010 (or Exchange Online, as deployed in Microsoft Office 365). And why shouldn't this be the case? Microsoft invested heavily during the development of Exchange 2010 to create an array of features that could satisfy the compliance requirements of large organizations. Although small organizations also need to comply with legislative or other regulatory directives, large organizations tend to devote the most attention to this aspect of email—if only because they are often targets for discovery actions launched by external parties.

In any case, although the legal community will luxuriate in its ability to expedite discovery searches and review the results, messaging administrators often have more mundane concerns. For example, how do you remove objectionable items from user mailboxes without teaching every user how to use Outlook or another client to purge items, especially when accessing an item might download a malicious payload? The good news is that Exchange 2010's built-in compliance features can also be used to locate and eradicate problematic items.

Email as a Virus Vector

In the early days of email viruses—around the time that users still happily opened any message that proclaimed love for the proud recipient (the first I Love You virus appeared in May 2000)—many anti-virus engines that protected email servers were slow and ponderous. These engines depended on the ability to log on to every mailbox on a server to check incoming messages. As the number of mailboxes grew and the volume of messages increased, this technique struggled to cope. Viruses could often sneak past the checks on incoming email to penetrate mailboxes. In these cases, administrators might be forced to log on to user mailboxes to check for and remove problem messages before they could spread infection.

It was only after Sybari (bought by Microsoft in 2005) introduced the “ESE shimmy,” enabling its antivirus engine to load its code before the Information Store, that we had reliable and robust antivirus products for Exchange that could catch viruses quickly. Today’s antivirus products all use a supported Microsoft API for fast and reliable access to mailbox contents.

Evolving Needs for Search and Destroy

With servers protected by reliable antivirus barriers, administrators aren’t likely to be forced to rush to disinfect mailboxes by searching and removing infected messages. However, we live in a litigious environment, so the need for search-and-destroy activities has evolved. It’s common to receive requests from an authority (e.g., the HR department, senior management, legal advisors), asking administrators to remove specific messages from user mailboxes. Perhaps someone sent out information that they should not have, or a company is compelled by a legal order to remove all references to an event, project, or product. In such circumstances, an Exchange administrator starts to consider using the [Search-Mailbox](#) cmdlet.

Exchange 2010 includes a GUI to create and execute multi-mailbox discovery searches from the Exchange Control Panel (ECP). These

searches use the [New-MailboxSearch](#) cmdlet to search a set of specified mailboxes and copy the results to a discovery mailbox. The big difference between the two cmdlets is that Search-Mailbox can search and remove content (i.e., seek and destroy) from a specified mailbox, whereas New-MailboxSearch is optimized to scan as many as 25,000 mailboxes and then copy the discovered content. The limit of 25,000 is set to restrict the amount of memory that multi-mailbox searches use. If necessary, you can update the system registry to increase this number by following the steps described in the article “[Exchange 2010 Discovery: Modify the maximum number of mailboxes searched at a time.](#)” Another feature of New-MailboxSearch (from Exchange 2010 Service Pack 1—SP1—onwards) is the ability to deduplicate search results so that separate copies of the same item aren’t taken from multiple mailboxes.

You can use Search-Mailbox to process multiple mailboxes. However, you must first form a collection of the desired mailboxes by using a cmdlet such as [Get-Mailbox](#), and then pipe the resulting data for processing by Search-Mailbox. The downside of using Search-Mailbox is that Exchange provides no UI in either Exchange Management Console (EMC) or ECP to construct and execute searches, as it does for multi-mailbox discovery searches. Instead, you must invoke these searches through Exchange Management Shell (EMS). The commands that I describe in this article are valid for both on-premises Exchange and Exchange Online.

Finding Data

The first order of business is to define what you want to find. In general, the more specific the search criteria, the better, faster, and more accurate the search will be. Casting a net to find every item with a subject containing “Test” on a large mailbox server will keep the computer occupied, but the results are unlikely to satisfy anyone.

Both the Search-Mailbox and New-MailboxSearch cmdlets support the [AQS syntax](#), a powerful method to build searches for the mix of

structures found in mailbox data, which comprise text that can contain just about anything as well as well-known properties such as author, subject, and date. The trick in successful Exchange searches, both in simple mailbox searches and multi-mailbox discovery searches, is to spend time making the search query as specific as possible before you launch it on a server.

In this case, let's assume that many tasteless messages have recently appeared in mailboxes. You want to perform a public service for users by removing these messages. You know the date range when the messages appeared, as well as some of the not-so-nice terms that the message body contains. Equipped with this knowledge, you can build a query and test its effectiveness.

To begin, you'll search just one mailbox. Ideally, choose one that you know holds some of the target messages, and run the following command:

```
Search-Mailbox -Identity 'Billing' -SearchQuery "Received:
> $('01/01/2012 00:00:00') AND Received: < $('01/31/2012
23:59:59') AND hookup" -LogLevel Full -LogOnly -TargetMailbox
'AdminMailbox' -TargetFolder 'Search Results'
```

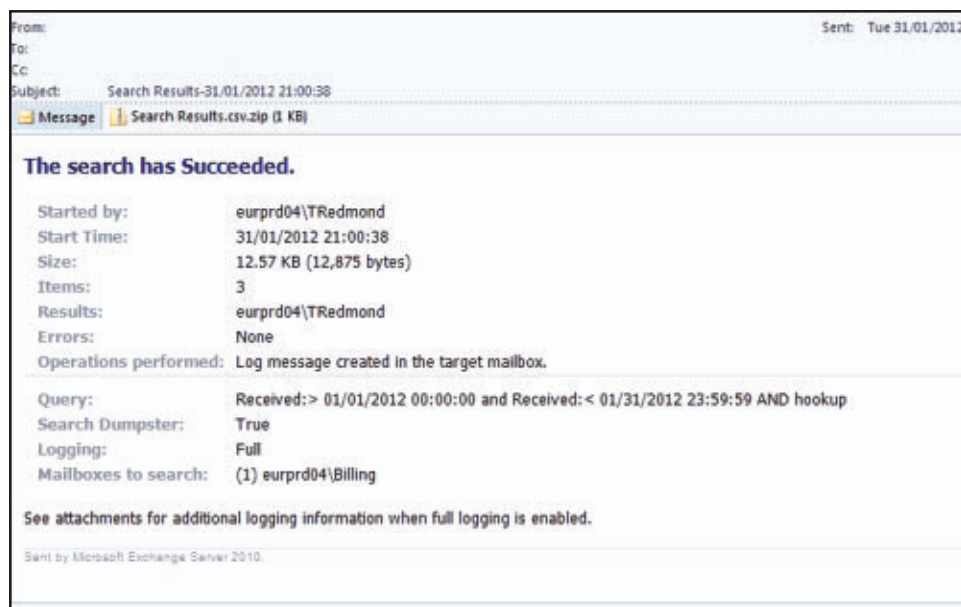
This command

- searches the Billing mailbox, as indicated in the -Identity parameter
- uses the AQS query that says, “find anything between January 1 and January 31 AND includes the word *hookup* in the message body”
- creates a full log of operations but doesn't do anything except log what you do
- puts the results in the Search Results folder of the AdminMailbox mailbox

Note the use of times in the AQS query. You don't need to pass time details—a date is usually enough to find data—but best practice is to be as exact as you can whenever you look for information.

The output of this search is a message that's created in the destination folder. As you can see in Figure 1, the search results indicate that three items have been found. Also note that Exchange has attached a ZIP file to the message. This file contains a comma-separated value (CSV) file with the details of the found items. You can use this information to confirm that the correct items have been located.

Figure 1
Search results
indicating targeted
items found



Deleting Content

After you're satisfied that you have a solid set of search criteria ready to go, you can modify the previous command to add processing power. Remember that Search-Mailbox operates on just one mailbox at a time. Sometimes this is sufficient, but not when you're trying to eliminate problematic messages from every mailbox on a server.

One method is to read a list of mailboxes from a data file and feed the mailbox names, one by one, to Search-Mailbox. This is a good approach when you need to process a set of mailboxes that are spread across multiple mailbox servers or perhaps the output of an

external data feed, such as from an HR system. However, the usual approach is to use the `Get-Mailbox` cmdlet to build whichever set of mailbox objects need to be processed, and then to pipe those objects to `Search-Mailbox`. In the following example, I tell EMS to process every mailbox in the organization. This works for a test or a small organization, but it's probably better to break things up if you have more than 1,000 mailboxes to deal with. That way, the processing load is spread over time or over servers. For example, you could use `Get-Mailbox` to build a list of every mailbox in a database, every mailbox on a server, and so on.

The other major addition to the command is the inclusion of the `DeleteContent` parameter. This parameter instructs Exchange to permanently delete the located items from the source mailboxes. If you provide values for the `TargetMailbox` and `TargetFolder` parameters, Exchange will copy the items before it deletes them from the source mailboxes. Copying items before deleting them can be an invaluable safeguard if a mistake creeps in and data is removed incorrectly. Should this happen, you can recover the situation by copying the items to a PST and then using the [New-MailboxImportRequest](#) cmdlet to import the items back into their rightful place in the user mailbox. This two-step approach is necessary presuming that you can't open the user's mailbox to drag and drop the items from one location to another.

If you copy items, be sure that the target mailbox has sufficient quota to hold the copied items, which could amount to quite a lot should you process many mailboxes. You cannot specify a folder in the mailbox that you search to use as the target.

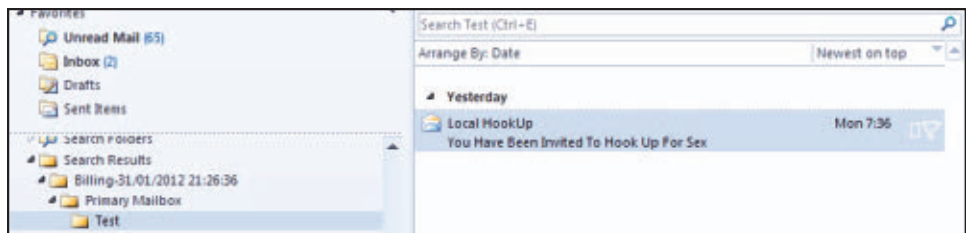
```
Get-Mailbox | Search-Mailbox -SearchQuery "Received:
> $('01/01/2012 00:00:00') AND Received: < $('01/31/2012
23:59:59') AND hookup" -LogLevel Full -LogOnly
-TargetMailbox 'AdminMailbox' -TargetFolder 'Search Results'
-DeleteContent
```

Because the DeleteContent parameter is included, EMS prompts for confirmation before executing the command.

After being launched, Search-Mailbox opens each mailbox in its input list, searches for the targeted items, and removes any items that match the search criteria. In this instance, we've provided a target mailbox and folder, so Exchange first copies the located items. Exchange creates the target folder if it doesn't exist in the nominated mailbox.

Just like multi-mailbox discovery searches, the mailboxes that you search are assigned a subfolder under the target folder; the search date and time are used as part of the folder name, to identify the particular search. Under this folder, you'll find an additional subfolder for each folder in which an item was found, as Figure 2 shows. Copies of the found items are stored in the relevant subfolders. Unlike multi-mailbox discovery searches, empty folders are not created if no items are found.

Figure 2
Results from running
Search-Mailbox results



By default, Exchange searches an archive mailbox if one exists, and creates a separate set of folders for any items found in the archive. You can exclude archives from searches by passing the DoNotIncludeArchive parameter. The contents of the Recoverable Items folder are also searched unless you set the SearchDumpster parameter to \$False.

Some RBAC Constraints

The DeleteContent parameter is available only to on-premises administrators who are members of the Mailbox Import Export Role Based

Access Control (RBAC) role group. I think that Microsoft provides this extra safeguard to ensure that only suitably authorized users who run the Search-Mailbox cmdlet can delete content. By comparison, any Office 365 tenant administrator who is a member of the Organization Management role group can delete content immediately because they automatically hold the Mailbox Import Export role. On-premises Exchange and Exchange Online operate radically different RBAC environments, and this is just one example of where the two differ.

You can use the following command to see the current set of assignments for the Mailbox Import Export role:

```
Get-ManagementRoleAssignment -Role "Mailbox Import Export" |  
Format-List RoleAssigneeName, EffectiveUserName
```

If you need to add a user to the Mailbox Import Export role group, you can do so by using the Add-RoleGroupMember cmdlet. For example, this command adds a user called Joe Smith to the group:

```
Add-RoleGroupMember -Identity "Mailbox Import Export"  
-Member "Joe Smith"
```

Easy to Delete

Both Exchange 2010 and Exchange Online include powerful search-and-destroy facilities. I hope that you never need to clean out funky items in user mailboxes, but it's good to know that doing so is easy! ■

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How OneNote Helps with Life on the Go

Use OneNote, Outlook, and SkyDrive to stay organized



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I'm not sure whether my job is becoming increasingly complicated or I'm just getting older and can't remember anything. Either way, keeping on top of every task seems nearly impossible these days. Fortunately, I've discovered that using Microsoft OneNote to integrate some common tools has helped me keep it all together. Here's a quick look at how I keep myself organized. And check out the sidebar, "Sean Deuby's Take on OneNote," for some more ways to apply OneNote.

A Place for Everything

To keep meeting agendas and tasks that I need to accomplish in front of me and their statuses up to date, I use a combination of OneNote on the PC, OneNote Mobile on my Apple iPhone or iPad, and Microsoft Outlook tasks. I start with an outline for each meeting; I store this outline in OneNote. For example, when I have my weekly one-to-one meetings with my director, I use an outline similar to this one

- Meeting Agenda
- Attendees
- Announcements
- Status of Old Action Items
- Summary of New Action Items

I've also found it useful to insert meeting details directly into OneNote, especially if the meeting organizer has sent a meeting agenda in the Outlook invite. To do so, click the Home tab in OneNote, choose the Meeting Details button, then choose the meeting.

As my boss and I work through the meeting, I run through my agenda items, cover any announcements, and give him updates on old action items. As we discuss items throughout the meeting, I add new action items to the bottom of the list (using my Apple iPad or iPhone, which I'll get to in a bit).

After the meeting is over, I go back to my desk, highlight each new action item, and choose a due date, as Figure 1 shows. Doing so not only adds a flag to the action item in OneNote, it automatically adds an Outlook task, as Figure 2 shows. These tasks neatly combine all the action items in OneNote into one comprehensive list. The flags in OneNote and the tasks in Outlook are tied together. When I click a flag in OneNote to check off a task as completed, the Outlook task is updated and marked

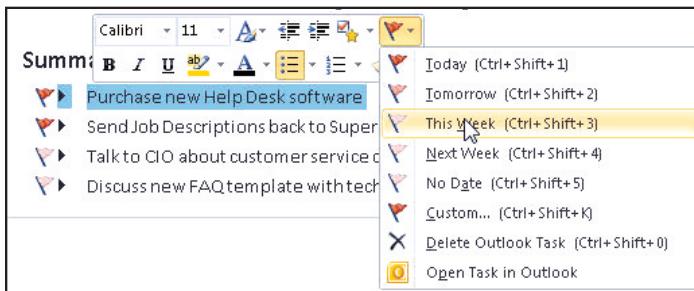


Figure 1

Choosing a due date for action items

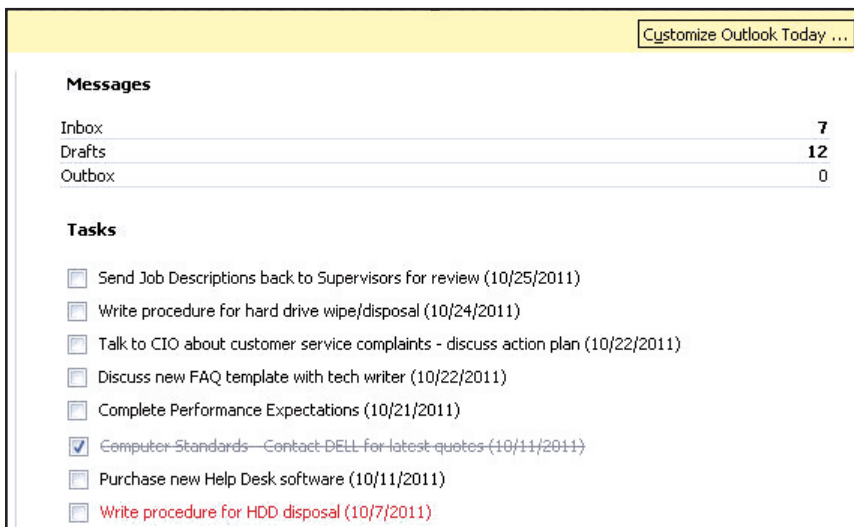
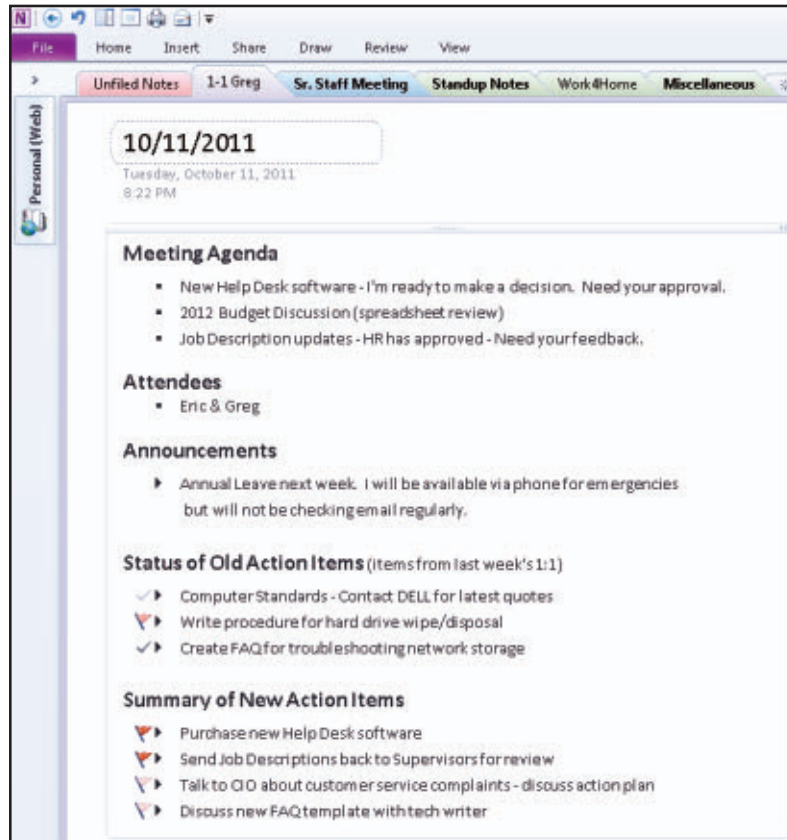


Figure 2

OneNote action items as Outlook tasks

complete in the background. At the end of the meeting, I have a clear picture of what we discussed, which items were completed, and any new action items that I need to keep on top of, as Figure 3 shows.

Figure 3
Reviewing action
items



Organized on the Go

OneNote Mobile does exactly what the name implies: It allows me to take OneNote with me on the go. By using Outlook 2010 on the computer and storing the files in Microsoft SkyDrive, I can access all my meeting notes via a free app that's available for the iPhone, iPod, iPad, Android, and of course Windows Mobile 6.1, or Windows Phone 7. Figure 4 shows what my meeting notes look like on my iPhone.

No matter where I am, I always have the notes I need at my fingertips—not on that notepad that I accidentally left on my desk. And even when I’m away from my desk, I can quickly add a note to the agenda whenever I think, “Oh yeah . . . I need to remember to ask about this.” The PC and mobile versions of OneNote always stay in sync, helping me to keep everything straight.

To set up OneNote for the iPhone, search for OneNote Mobile in the Apple App Store. After installing the application, open OneNote Mobile. You will be prompted to enter a Windows Live ID account. If you don’t already have a Windows Live ID, you can create one. OneNote Mobile stores all your data on the SkyDrive that you associate with that Windows Live ID account, so be sure to keep your username and password secure.

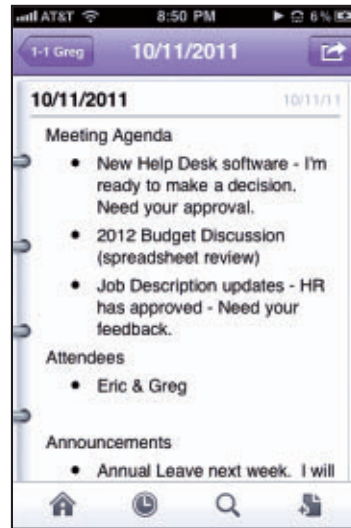


Figure 4
Reviewing items in
OneNote Mobile

Sean Deuby's Take on OneNote

I use Microsoft OneNote in every facet of my life that requires remembering or keeping information. At work, I keep track of meeting minutes, compose new content (I’m writing this sidebar in OneNote), record presentation audio in sync with my notes, and document new technology as I learn it. At home, I use OneNote to document everything from my wife’s ring size to the details of my most recent encounters with cranky customer service reps. And, like Eric, I love OneNote’s SkyDrive synchronization across all my computers.

I use OneNote Mobile for phone and tablet, but performance varies. OneNote Mobile on my Windows Phone works wonderfully (as it should), though I must be patient while it syncs on launch. The Apple iPad app has a good functional framework but a basic implementation. Some fundamental features, such as indenting, are missing, and I’ve had several pages that never synchronized correctly with the rest of my notebooks. My expectations of rapid updates for the app—as we’ve become used to for mobile apps—aren’t high.

Despite its shortcomings in some mobile versions, I count on OneNote to be the steel-trap memory I wish I had myself! ■

InstantDoc ID 143411

The iPad OneNote application takes advantage of the larger screen size, so be sure to install the iPad version, rather than the iPhone version, on your iPad.

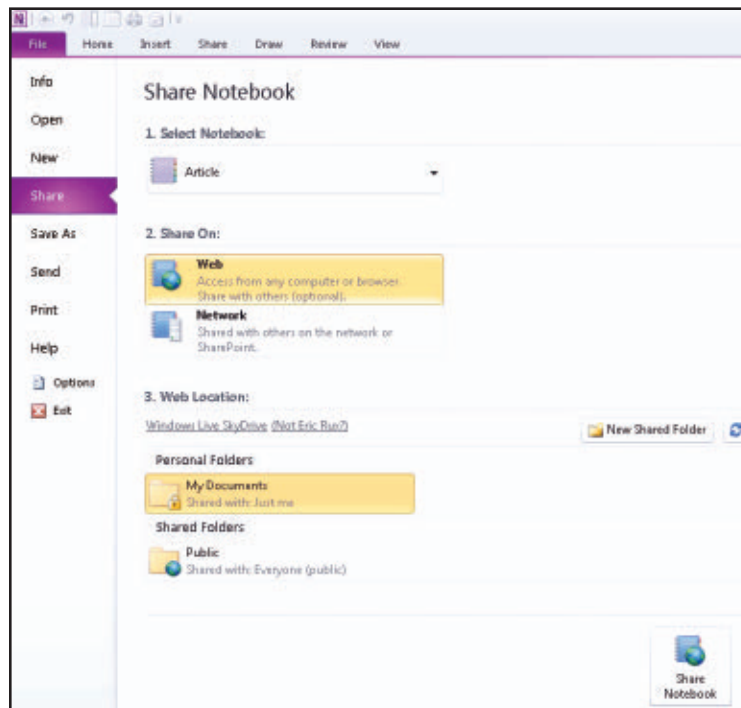
You can then access your notes from any computer by [signing in to your Windows Live account](#) and clicking SkyDrive. There, you'll find your OneNote documents in the My Documents folder. However, to make the process truly seamless, connect OneNote 2010 on your PC to SkyDrive:

1. Click File, Share.
2. Choose the notebook that you want to share.
3. Choose where you want to share the notebook.
4. Choose where in your SkyDrive you want to share the notebook.

Figure 5 shows an example of how I shared a notebook called *Article* on the Web, in the My Documents folder in my SkyDrive.

Figure 5

Connecting OneNote
and SkyDrive



SkyDrive Storage

After you have your SkyDrive set up, you'll no doubt find other uses for it. I keep a copy of important files that I might need to reference on my mobile phone. For example, if a customer is unhappy with my company's response time, I can quickly pull up a copy of our service level agreement on my phone. One caveat: In my experience, using the SkyDrive on a mobile device is best for consuming content, not creating it. Keep this in mind as you decide which files to access via this free Microsoft online file-storage service.

Make Life Easier

This article illustrates just one example of how a mobile version of a common application, an Internet storage location, and an application that you already use everyday can make your life easier. Try it for yourself. ■

InstantDoc ID 142926



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The power to do more

Outlook 2010: Move Sent Messages

Use VBA code to organize MailItems after sending



Rob Gravelle

resides in Ottawa, Canada, and is the founder of Gravelle Consulting. Rob has built systems for intelligence-related organizations such as Canada Border Services and for commercial businesses.

Email



Gravelle Consulting



Rob Gravelle



Microsoft Outlook's default behavior is to retain a copy of sent items in the Sent Items folder. But in a business environment, in which hundreds of email messages might be dispatched each day, such a generic setup might not be satisfactory. Many people want to organize email messages by topic or line of business (LOB), which isn't the same as sorting by conversation, as each LOB can contain numerous conversation threads. Although moving received messages to a specified folder is simple enough, doing so with sent messages is another matter. The primary stumbling block is that, although Outlook provides an option for moving a *copy* of a MailItem after sending, it does not offer a rule or option setting to move the sent item itself.

Many an Outlook user has attempted to come up with a way to move messages after sending, usually relying on complicated timed processes and bug-prone Windows API calls via a third-party DLL such as Outlook Redemption. After some thought and a little experimentation, I have come up with a couple of Visual Basic for Applications (VBA) macro solutions that should suit your needs nicely.

Limitations of the Rule-Based Approach

When confronted by behavior that doesn't conform to my expectations or preferences, I tend to be a little hasty in looking for programmatic solutions. (It's the developer in me!) But before jumping into VBA code with both feet, I try to check out the Outlook Email

options and rules. Only after you've exhausted those avenues should you go looking for more complex fixes. I followed my own advice in this instance.

Let's see what we can do with the Outlook Rules Wizard. If you start with a blank rule, you can choose whether to apply the rule to incoming or outgoing messages, as Figure 1 shows. After you select the conditions to identify the messages that you're looking for, you can select a folder to which to copy those messages, as Figure 2 shows.

However, note that this rule creates and moves a message copy; the original message is left in the Sent Items folder. The only way to avoid this is to clear the *Save copies of messages in Sent Items folder* check

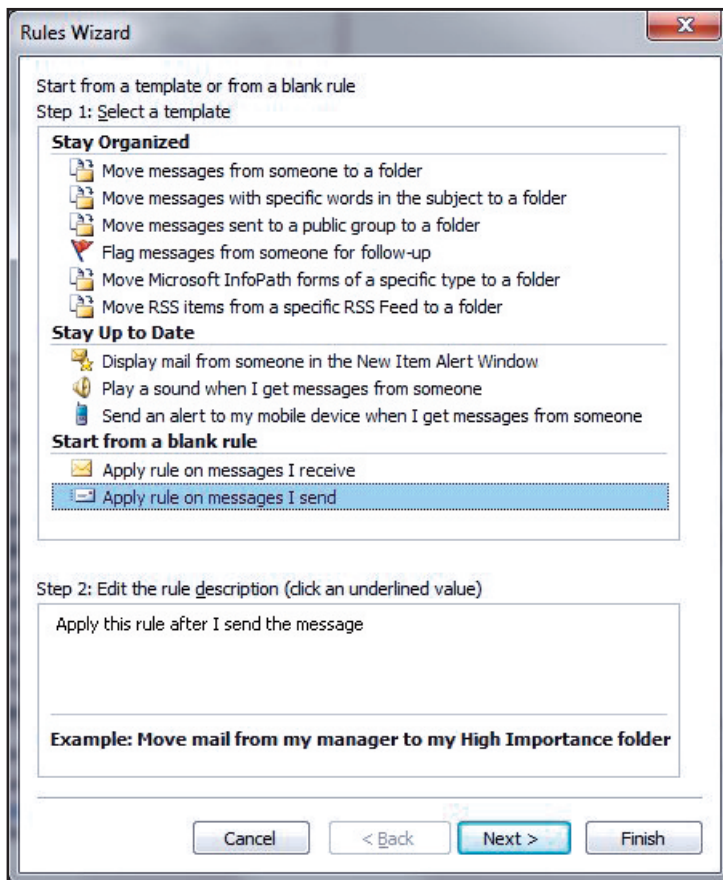
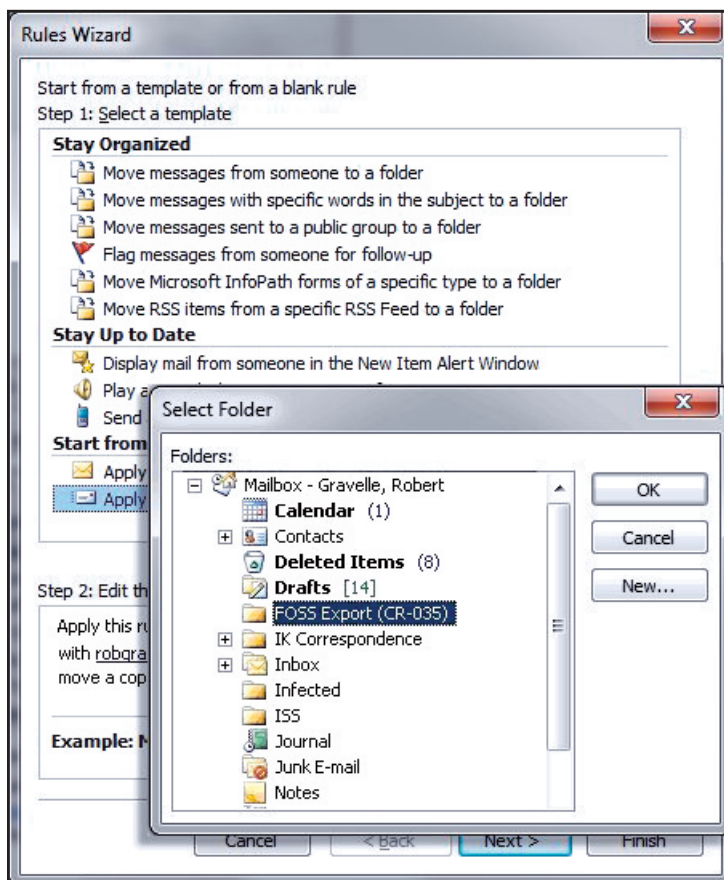


Figure 1
Using the Rules Wizard
to apply a rule
on sent items

Figure 2
The Rules Wizard
Select Folder dialog
box



box (in the *Message handling* section of the E-mail Options dialog box), which Figure 3 shows. The downside to this approach is that it prevents Outlook from keeping copies of *any* sent messages, so you won't have access to sent messages that aren't picked up by your rule.

VBA Fix: Using the MailItem's Send Event

Dissatisfied with the rules-and-options route, I rolled up my sleeves, made a pot of coffee and got to work.

Like those who have tread these murky waters before me, I began with the `MailItem_Send()` event. The approach seems straightforward enough: You send an email, and then move it. Only one problem: The

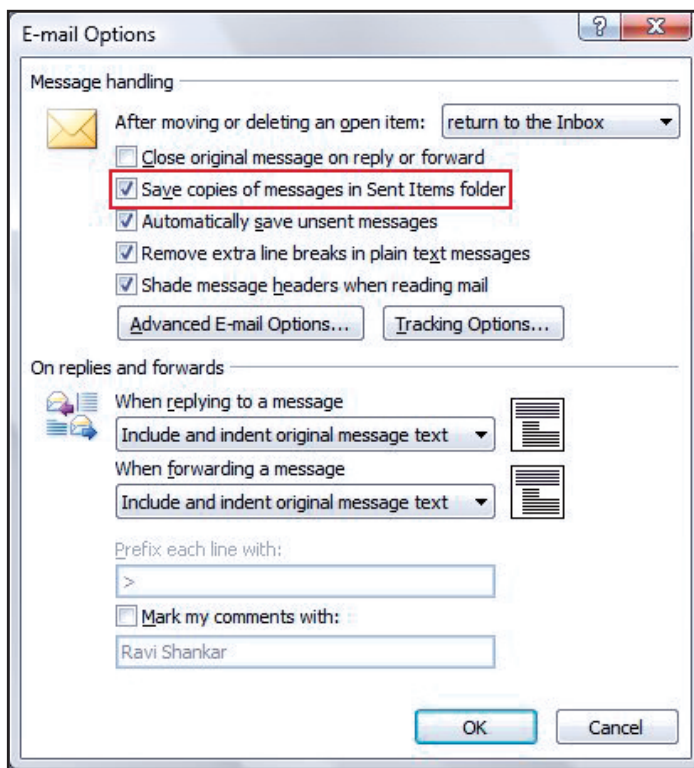


Figure 3
The E-mail Options
dialog box

message isn't moved into the Sent Items folder until the Send event has completed. Hence, any attempt to find the message in the Sent Items folder proves fruitless. Start on second coffee. Think harder.

Where to Put the Code?

One key factor in event-driven programming is where to place the event-handling code. Make the wrong choice, and you could have a brittle and flaky application on your hands. There might be more than one candidate, but more often than not, one choice is better than the others.

One event that crossed my mind is my destination folder's `ItemAdd()` event. This event fires whenever one or more items are added to its Items collection. But upon further investigation, I realized that this event is faced with the same timing problems as the `MailItem_Send()`

event. You'd also need to duplicate the same code for all your destination folders. Duplication of code isn't considered good style, so forget about that idea.

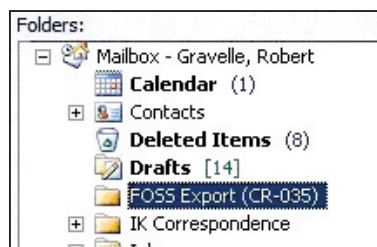
It seemed that the `MailItem_Send()` event was still my best choice for the code, since I could apply my rule to all outgoing messages. I just needed to approach the problem from a different angle.

Filtering Messages by Criteria

In a perfect world, we could call our VBA macro from a rule. That way, the rule would perform the mail filtering and the macro would take care of moving the message. Outlook 2002 added an option to run a script on incoming messages, but unfortunately, there's no such option for outgoing messages. No reason to get upset, though; that's an inefficient way to launch script code anyway. I've tried it a few times and found it to be highly unreliable. Every now and then, it causes an error and the rule is deactivated. We'll do our filtering right in the `oMsg_Send()` event.

Suppose I have several contacts at `RobGravelleAndCo.com` and want to move all messages addressed to those contacts to an Outlook folder called `FOSS Export (CR-035)`, which Figure 4 shows. The `Recipients` object contains a collection of `Recipient` items, each of which contains the properties and methods that relate to one recipient. One `Recipient` property is the `AddressEntry` object, which houses the recipient's address details, including email address. The `Recipient` has a property called `Address` for the email address. We'll examine that property in the `oMsg_Send` code at callout B in Listing 1.

Figure 4
Outlook Folders



Instead of trying to delete a message manually after sending it, we can set the `MailItem's DeleteAfterSubmit` flag to true so that Outlook does it for us. Just keep in mind that turning on the `DeleteAfterSubmit` flag via the `MailItem Properties` dialog box will delete *all* sent

Listing 1: ThisOutlookSession Code for the oMsg_Send Solution

```
Option Explicit
```

```
Public WithEvents oInspectors As Outlook.Inspectors
Public WithEvents oMsg As Outlook.MailItem
Private Const BUSINESS_FOLDER = "FOSS Export (CR-035)"
```

```
Private Sub Application_Startup()
    Set oInspectors = Application.Inspectors
End Sub
```

```
A Private Sub oInspectors_NewInspector(ByVal Inspector As
    Inspector)
    If Inspector.CurrentItem.Class = olMail Then
        If Len(Inspector.CurrentItem.EntryID) = 0 Then
            Set oMsg = Inspector.CurrentItem
        End If
    End If
End Sub
```

```
Private Sub oMsg_Send(Cancel As Boolean)
    Dim oRecipient As Recipient, oBusinessFolder As
    MAPIFolder, oEmailCopy As MailItem
```

```
B For Each oRecipient In oMsg.Recipients
    If InStr(1, oRecipient.Address, "RobGravelleAndCo.com") Then
        oMsg.DeleteAfterSubmit = True
        Set oBusinessFolder = Application.Session
        .GetDefaultFolder(olFolderInbox).Parent.Folders
        (BUSINESS_FOLDER)
        Set oEmailCopy = oMsg.Copy
        oEmailCopy.Move oBusinessFolder
        Exit For
    End If
Next
End Sub
```

messages! That's a bit of a sledgehammer solution when all you want to do is move certain messages.

On the subject of moving messages, you can't move the message from within the MailItem_Send() event because Outlook isn't done with it yet. (Attempting to do so results in a nasty runtime error.)

According to Microsoft, the preferred way to manage this delicate operation is first to use the `Copy()` function to clone the message, then to move the clone. Although this is not a true message move, the result is the same: After the clone is moved, the original message is deleted, thanks to the `DeleteAfterSubmit` flag.

Now we need a reference to our folder. Working with custom folders is a bit more work than using Outlook's default folders. You can't just use the folder name to call the `GetFolder` function (there isn't one). Instead, we need to navigate to the custom folder from one of the default folders. In our case, the FOSS Export (CR-035) folder is parallel to the Inbox, in the mailbox root. To obtain a reference to a default Outlook folder, simply call the `Application.Session.GetDefaultFolder()` function with one of the `olDefaultFolders` Outlook Library enumeration values. For example, the following code retrieves the Inbox:

```
Set olInbox = Application.Session.GetDefaultFolder(olFolderInbox)
```

We can get to our folder by using this code:

```
Set oBusinessFolder = Application.Session.GetDefaultFolder  
    (olFolderInbox).Parent.Folders(BUSINESS_FOLDER)
```

`BUSINESS_FOLDER` is a constant for our folder name. The `oBusinessFolder` can be passed directly to the `MailItem.Move()` sub, as it requires a `MAPIFolder` object. Similarly, we can get a folder's subfolder via its `Folders` collection property:

```
Set ObjFolder = Application.Session.GetDefaultFolder(olFolderInbox)  
    .Folders("<subfolder name>")
```

The Visual Basic Editor

All Microsoft Office applications come with a full-featured IDE called the Visual Basic Editor. It provides an interface for accessing

application object models through code so that you can call object methods, set object properties, and respond to object events. The code that's used to accomplish these goals is VBA, a specialized subset of the Visual Basic language.

A Developer tab is available on the Office Ribbon, to access the Visual Basic Editor and other developer tools. However, this tab is disabled by default to help protect against viruses and other malicious code. You need to perform the following steps before you can use this tab:

1. In Outlook, select Outlook Options from the File tab to open the Outlook Options dialog box.
2. In the Outlook Options dialog box, click Trust Center.
3. Click Trust Center Settings, and then choose the Macro Settings option on the left.
4. Select the Macro security level that suits your comfort level, keeping in mind that the setting pertains to other people's macros as well as your own. If you don't want to give all macros *carte blanche*, you can have Outlook display a prompt each time a macro is about to run. That way, you can decide whether you want to let the macro run. That option is called *Notifications for all macros*.
5. Restart Outlook for the changes to take effect.

The Visual Basic button, which Figure 5 shows, will be on the far left in the Developer tab. Figure 6 shows the Visual Basic Editor.

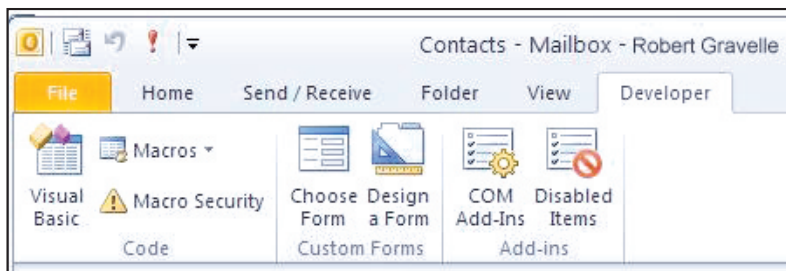
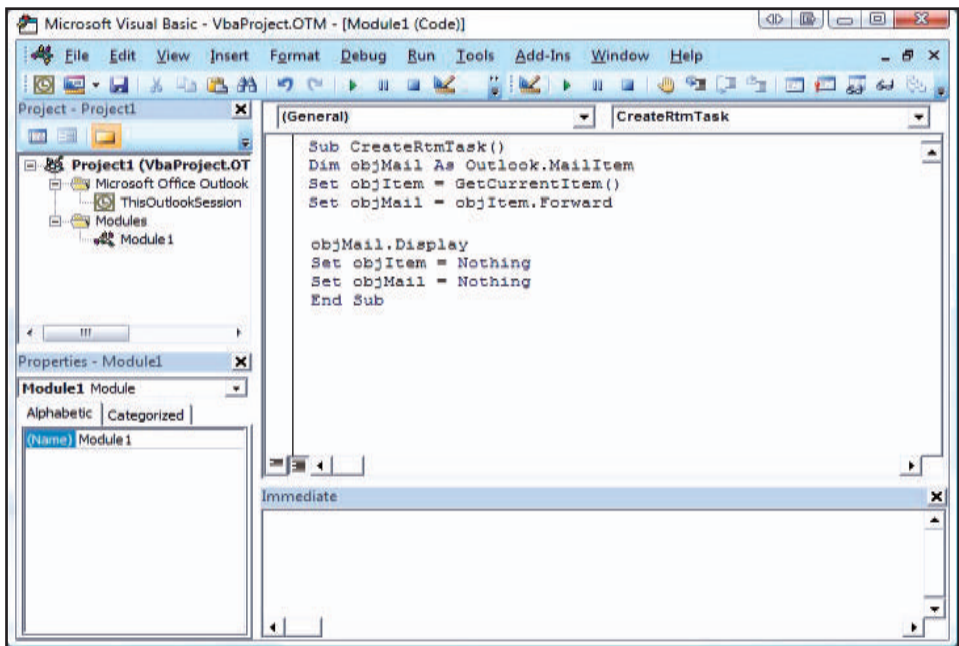


Figure 5
Developer tab with
Visual Basic button

Figure 6
Visual Basic Editor with
Immediate window
visible



The MailItem Send() Event

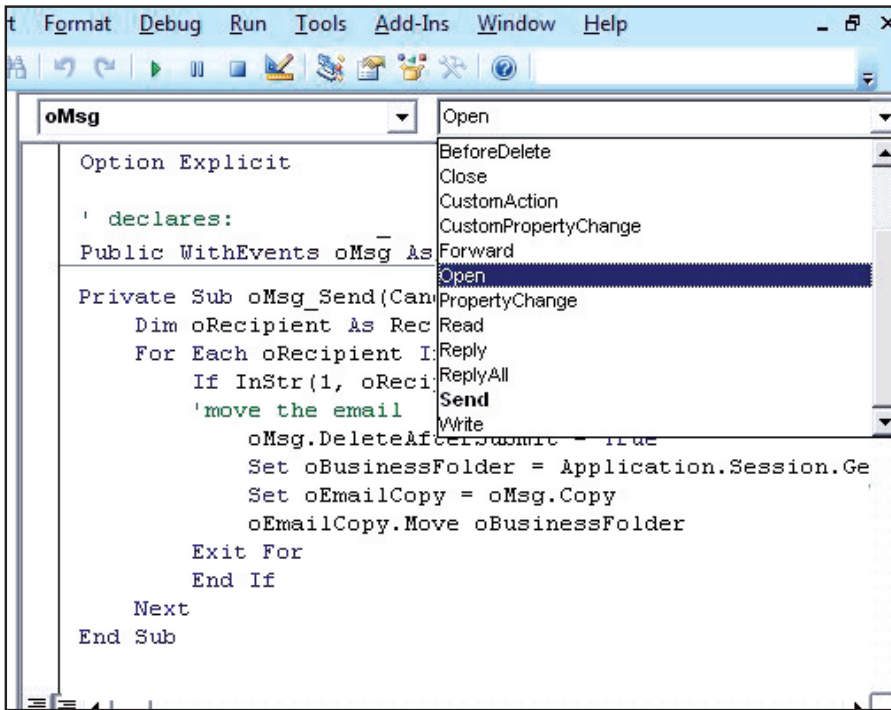
To make an object's events available in the Declarations drop-down list in the Visual Basic Editor (as Figure 7 shows), you need to use the WithEvents keyword to declare the object. The two following object declarations allow us to access the MailItem Send() event:

```
Public WithEvents oInspectors As Outlook.Inspectors
Public WithEvents oMsg As Outlook.MailItem
```

The Inspectors collection contains the Inspector objects for all open inspectors (i.e., a window that displays information about an Outlook item). The reference to the Inspectors collection is set in the Application_StartUp() event:

```
Private Sub Application_Startup()
    Set oInspectors = Application.Inspectors
End Sub
```

Figure 7
Declarations drop-down list in Visual Basic Editor



Binding oMsg to the Current Inspector

By setting the MailItem reference in the `Inspectors_NewInspector` event, we specify that only new messages will be referenced. Opening an existing email message will not cause the `Inspectors_NewInspector` event to fire.

The Inspector, which is passed to the sub, has a `CurrentItem` property, which refers to the item that the user is viewing. We can check this item's `Class` property to determine whether it is a `MailItem`. We can use a constant named `olMail` for this purpose. Another necessary check is for the unique ID string that the Messaging API (MAPI) store provider assigns when an item is created in the store. Therefore, the `EntryID` property is set for an Outlook item only after the item is saved or sent. This check, which the code at callout A in Listing 1 shows, distinguishes new email items from existing ones. Setting the `MailItem` in this way causes its events, including the `Send` event, to fire.

The oMsg_Send Event in Action

I printed some output to the Immediate window (which the bottom pane in the Visual Basic Editor in Figure 6 shows) to test the process. Click View on the menu bar and then click Immediate Window if it isn't visible. Figure 8 shows some typical results when the message is addressed only to the host for which we're checking. This message contained a total of three recipients: one in the To field, one in the CC field, and one in the BCC field. All three recipients were contained within the MailItem's recipients collection. RobGravelleAndCo.com was the BCC address, as Figure 9 shows.

This final test run was a reply to that message, with the RobGravelleAndCo.com recipient removed. As expected, our rule did not move the sent item, as Figure 10 shows.

An Alternative Solution: Using the Sent Items Folder Items_ItemAdd Event

The oMsg_Send solution is a good choice if you're already processing new messages, and thus need to reference the new Item's Inspector. An alternative solution places the code in the Sent Items folder's Items_ItemAdd() event. (Listing 2 shows the ThisOutlookSession code for this solution.)

Placing the main logic in the Items_ItemAdd() event gives us a couple advantages. First, it results in less code. Second, it is highly efficient. All sent items land in the Sent Items folder, unless you have

Figure 8

Sample oMsg_Send
Output

```
Opening a new inspector.
Current item is an email message.
Email message is new. Storing the CurrentItem.

You have 3 recipient(s) in the recipient list.
Checking rob@RobGravelleAndCo.com...
Recipient is a member of RobGravelleAndCo.com. Moving to FOSS
Export (CR-035).
```

```

Opening a new inspector.
Current item is an email message.
Email message is new. Storing the CurrentItem.

You have 3 recipient(s) in the recipient list.
Checking /o=Revenue Canada/ou=DA/cn=Recipients/cn=HQ/
  cn=Customs/cn=Customs_H02/cn=Users/cn=JXG768...
Checking robert.gravelle@cic.gc.ca...
Checking rob@RobGravelleAndCo.com...
Recipient is a member of RobGravelleAndCo.com. Moving to FOSS
  Export (CR-035).

```

Figure 9

Action on a filtered message for the oMsg_Send solution

```

Opening a new inspector.
Current item is an email message.
Email message is new. Storing the CurrentItem.
You have 2 recipient(s) in the recipient list.
Checking /o=Revenue
Canada/ou=DA/cn=Recipients/cn=HQ/cn=Customs/cn=Customs_H02/
  cn=Users/cn=JXG768...
Checking robert.gravelle@cic.gc.ca...

```

Figure 10

Action on a non-filtered message for the oMsg_Send solution

created rules that circumvent this behavior or have cleared the *Save copies of messages in Sent Items* check box in the E-mail Options dialog box. Note that both solutions presented here apply to one mailbox account. Therefore, if you wanted to apply similar processing to multiple mailboxes, you need to attach your processing code to each SentItems folder event, as Listing 3 shows.

Gaining Access to the Sent Items Folder's Items_ItemAdd() Event

The ItemAdd() event is a member of the Items collection object, so we need to use the WithEvents keyword at the top of the ThisOutlookSession module to declare an object of type Items:

```
Public WithEvents olSentItems As Items
```

Placing the main logic in the Sent Items folder's Items_ItemAdd() event gives us a couple advantages.

Listing 2: ThisOutlookSession Code for the Items_AddItem Solution

Option Explicit

Public WithEvents oSentItems As Items

Private oBusinessFolder As MAPIFolder

A Private Const BUSINESS_FOLDER = "FOSS Export (CR-035)"

Private Const PARTNER_EMAIL_ADDRESS = "RobGravelleAndCo.com"

B Private Sub Application_Startup()

Dim oSentItemsFolder As MAPIFolder

Set oSentItemsFolder = Application.Session.GetDefaultFolder(olFolderSentMail)

Set oSentItems = oSentItemsFolder.Items

Set oBusinessFolder = oSentItemsFolder.Parent
.Folders(BUSINESS_FOLDER)

End Sub

Private Sub oSentItems_ItemAdd(ByVal Item As Object)

Dim oRecipient As Recipient, oMailItem As MailItem

If Item.Class = olMail Then

Set oMailItem = Item 'this will enable auto-complete
for mailitems.

For Each oRecipient In oMailItem.Recipients

If InStr(1, oRecipient.Address, PARTNER_EMAIL_
ADDRESS) Then

oMailItem.Move oBusinessFolder

Exit For

End If

Next

End If

End Sub

C Public Sub runMoveSentItemsMacro()

Dim item As Object

For Each item In Application.Session.GetDefaultFolder(olFolderSentMail).Items

Call oSentItems_ItemAdd(item)

Next

End Sub

Listing 3: Code to Apply Processing to Multiple Mailboxes

```
Public WithEvents oAFSSentItems As Items
Private oAFSBusinessFolder As MAPIFolder
Public WithEvents oSTSSentItems As Items
Private oSTSBusinessFolder As MAPIFolder

Private Sub oAFSSentItems_ItemAdd(ByVal Item As Object)
...

Private Sub oSTSSentItems_ItemAdd(ByVal Item As Object)
...
```

The business folder information is also included here. If you expect a large volume of email related to a particular LOB, it's probably a good idea to create a global reference to its folder, as the code at callout A in Listing 2 shows. As before, the object references are set in the `Application_StartUp()` event. As the code at callout B in Listing 2 shows, this time I referred to the business folder in relation to the Sent Items folder (i.e., at the same level as the Inbox).

The Modified Rule Code

We no longer need to set the `DeleteAfterSubmit` flag to create a copy of the `MailItem`. However, we do need to check the item's `Class` type, as the `Item` parameter is a generic `Object`. Objects other than email messages, such as Meeting Items, can be placed in the Sent Items folder. I also took the extra step of storing the item in a proper `MailItem` object so that the IDE's auto-complete feature will kick in. If you know exactly which properties you need to access, you can dispense with this step.

The `oSentItems_ItemAdd` Event in Action

Again, I printed output to the Immediate window to test the `Items_AddItem` solution; everything worked. The example, in Figure 11, shows a message addressed only to the host for which we're checking. The message that Figure 12 shows was addressed to someone

Figure 11

Action on a filtered
message for the
Items_AddItem
solution

A MailItem has been moved to the Sent Items folder.
You have 1 recipient(s) in the recipient list.
Checking rob@RobGravelleAndCo.com...
Recipient is a member of RobGravelleAndCo.com. Moving to FOSS
Export (CR-035).

Figure 12

Action on a non-
filtered message for
the Items_AddItem
solution

A MailItem has been moved to the Sent Items folder.
You have 1 recipient(s) in the recipient list.
Checking /O=REVENUE
CANADA/OU=DA/cn=Recipients/cn=HQ/cn=Customs/cn=Customs_H02/
cn=Users/cn=JXG768...

who isn't a member of the RobGravelleAndCo.com domain. As expected, only MailItems produced output.

Adding other Item types to the mix is easy; just change your If statement into a Select Case and include your target types as a comma-delimited list, as the code in Listing 4 shows.

Listing 4: Code to Add Item Types

```
Private Sub oSentItems_ItemAdd(ByVal item As Object)
    Dim oRecipient As Recipient

    Select Case item.Class
        Case oMail, oMeetingRequest
            For Each oRecipient In item.Recipients
                If InStr(1, oRecipient.Address, PARTNER_
                    EMAIL_ADDRESS) Then
                    item.Move oBusinessFolder
                Exit For
            End If
        Next
    End Select
End Sub
```

Running the Move Sent MailItems Macro on Demand

After installing the Move Sent MailItems macro, you might want to run it on messages that were sent previously. To do so, use the Macros

dialog box, which is available via the Macros button on the Ribbon. The only catch is that the macro provides access to public macros only, and our macros are not public. Even if we could see the SentItems folder ItemAdd event, it processes only the last sent message. Therefore, we need to add a public subroutine to loop through every item in the SentItems folder, as the code at callout C in Listing 2 shows. Now we can open the Macros dialog box, select our new public sub (if it isn't already selected), and click the Run button to execute it.

Safe and Simple

This article showed you how to use VBA code to extend the built-in rules and option settings in Outlook 2010. Specifically, you saw a couple ways to move a MailItem to a user folder after sending. Unlike many solutions that rely on complicated timed processes, bug-prone Windows API calls, or third-party DLLs, this one is much safer and simpler. As a client-side solution, it is independent of your mail server vendor and doesn't rely on your using Exchange Server. Moreover, it will work for any number of users, whether 50 or 5,000.

The only remaining question is how to best distribute the VBA code to users. There are a few ways to go about it, some of which require user cooperation and others that can be done remotely:

- Use the File | Export command in the Outlook VBA environment to export modules as .bas, .cls, or .frm files.
- Copy the VbaProject.otm file from the machine on which the macros were written to other users' machines, replacing any existing VbaProject.otm file.
- Use the Office Profile Wizard (Proflwiz.exe) to distribute the VBA project.

For more information on these techniques, see the article [“To Distribute Microsoft Outlook VBA Code to Other Users.”](#) ■

InstantDoc ID 142687



Learning Path

Windows IT Pro Resources

Microsoft Outlook Programming: Jumpstart for Administrators, Developers, and Power Users,
Sue Mosher
[Inspectors.NewInspector Event](#)
[MailItem.Send Event](#)

Faceted Search in SharePoint 2010

Give users what they're looking for



Kevin Laahs

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The search experience in Microsoft SharePoint has improved continually throughout the product's more than 10-year life-time. This is just as well. Otherwise, SharePoint would stand no chance of supporting the needs of end users in today's world of information ubiquity.

The information explosion, ever-increasing business pace, and user expectations place many challenges on search engines. Fortunately, SharePoint provides a feature that many people refer to as faceted search. Also known as a search refiner, faceted search enables users to navigate search results in an intuitive and context-sensitive way so that they can more quickly find the information that they're looking for.

The Importance of Search

Everyone engages in searching—frequently. However, too much search activity indicates that the information you seek isn't easily findable. Extrapolating this issue leads to the conclusion that you aren't exploiting your company's intellectual capital to its fullest. When this happens, end-user productivity is affected. Not only do users end up frustrated, but they can never be 100-percent confident that the information they're working with is truly the best and most relevant for the task at hand.

Users often reach for that search box in high anticipation of quickly finding relevant information, only to have their expectations instantly buried in an avalanche of search results that appear to have little connection to their quest. This leads to disappointment and

mistrust of the search system. The end user's view: "I asked you to find something relevant, and you can't even do that one simple thing!" (to paraphrase a line from the film *Superman 3*).

But fixing this problem isn't simple. Ensuring that the absolute best information is returned to a search query is difficult for many reasons:

- Volume and scope of information sources. Your information assets tend to be very large and spread out through multiple repositories, so finding the best answer is usually akin to finding a needle in a haystack.
- Highly structured to highly unstructured information sources. This challenge essentially relates to how well your information assets can be identified via metadata (i.e., data that describes the information, such as who the author is, to which project the information belongs, when the information was created, and so on). Some information strictly adheres to a known taxonomy, other information tends to have partial metadata that might or might not adhere to a taxonomy, and still other information has no metadata at all associated with it.
- Non-exhaustive content. Your information assets are not just contained within documents. Tacit knowledge abounds, so search results should also consider the people that have the knowledge you seek. Information sources external to your organization might also be able to help users achieve their goals.
- Relevance requires a context. If the context in which the search query is executed is not understood, then returning the best information is almost impossible. Often, no context is given for the search: Users simply enter some keywords into a search box and expect the best.
- User context is generally unknown. This challenge is similar to the previous one but refers more to implicit context that's based on who the user is. Users expect results that are relevant to them, so different results need to be returned for different people.

For example, if an engineer searches for *drawings*, then returning engineering drawings is relevant—whereas the same search by a painter should return works by artists.

- Ambiguous and incomplete query terms. Users expect the search engine to find the right thing and therefore often enter minimal terms in the query request. Users also might struggle to determine the best terms to enter and might have issues such as not knowing how certain assets are named in the system. For example, users' first names and surnames can often be difficult to enter correctly. All this makes it even more difficult for the search engine to return the best information.

Given these challenges, search should not be viewed as something that always delivers the right results the first time. Rather, it should be viewed as an interactive utility that guides the user through the information jungle to the appropriate destination, in as few clicks as possible. Successfully tackling such issues is key to ensuring that search aids information-worker productivity rather than being seen as a barrier and that search becomes a valuable business tool that can be relied on and used to achieve better business outcomes.

With this in mind, let's take a look at how refiners and the Refinements Web Part deliver functionality that can lead users to their destinations, without frustration.

Refiners

Refiners (aka faceted search) are a key feature that lets users further navigate the search result set by using what are essentially smart filters or groupings. Refiners are typically presented in the left navigation area of the search results page by using the Refinements Web Part. Refiners facilitate the idea of a conversational user experience.

Refiners are determined dynamically, based on the returned result set, the calling user, and the search results page. In Figure 1, you can

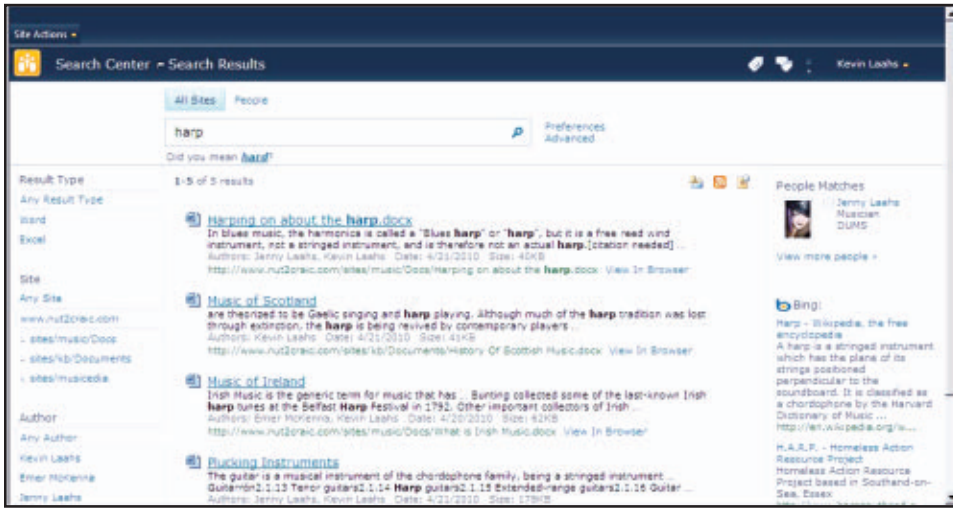


Figure 1
SharePoint search results showing search refiners in the left column

see three Refiners—Result Type, Site, and Author—displayed at the left side of the page. More refiners, such as Modified Date and Wiki Categories, are presented further down the page.

The dynamic nature of refiners can be understood best by looking at the Result Type refiner that Figure 1 shows. Here, you can see the ability to further filter the result set by either Microsoft Word or Excel. This tells you that only Word and Excel items were returned in the search results. If, for example, a Microsoft PowerPoint document was returned, then you'd also see an option to filter by PowerPoint.

You can navigate further into some of the refiners, such as the Site refiner that Figure 1 shows. Here, you can see that we have navigated into the www.nut2craic.com namespace and found three site collections within. This information tells you that the result set came from only these three site collections. Therefore, you can home in on the content you seek with a few clicks.

Tags that users have used to mark content can also be used as refiners. This approach lets you navigate the result set to find pages that are being tagged by the whole community. Such pages are usually wonderful candidates for relevant content because it is the

community that is ultimately surfacing them in the search results. How very social!

When you click a refiner value, the search results page is called, with suitable query terms that ensure that only the refined content is returned. The “r” query string is used to pass the desired refiner to the query. As an example, the following URL is associated with the Excel refiner that’s shown in Figure 1: [http://www.nut2craic.com/Pages/results.aspx?k=harp&r=fileextension="odc" fileextension="ods" fileextension="xls" fileextension="xlsb" fileextension="xlsm" fileextension="xlsx"](http://www.nut2craic.com/Pages/results.aspx?k=harp&r=fileextension=\).

The Refinements Web Part

Refiners are displayed via the Refinements Web Part. The configuration of this Web Part determines which refiners are listed for the current result set. The XML that’s associated with the Web Part is used to define filter categories, which are mapped to SharePoint managed properties that are in the search index or to managed metadata that is defined in the SharePoint Managed Metadata service. Through this XML, you can control how to determine the displayed refiners, how many refiners are displayed within each category, and so on. You can also define how to associate items that match the search query and a particular filter category. For example, the filter category for Result Type indicates that the file extension for *managed property* should be used and that extensions that are equal to xlsx, xlsm, and so forth, should be included in the Excel category. (We’ll discuss how to view the default XML that defines such filter categories in a moment.)

The XML can also perform relative calculations on the value of a managed property to determine its filter category. For example, the XML for the Modified Date filter category instructs SharePoint to calculate the number of days that have passed since the Write managed property was last updated in order to determine whether the item should appear in the Last Week, Last Month, or Last Year filter category. Listing 1 shows some sample XML for the Modified Date category.

Listing 1: Sample XML for the Modified Date Category

```

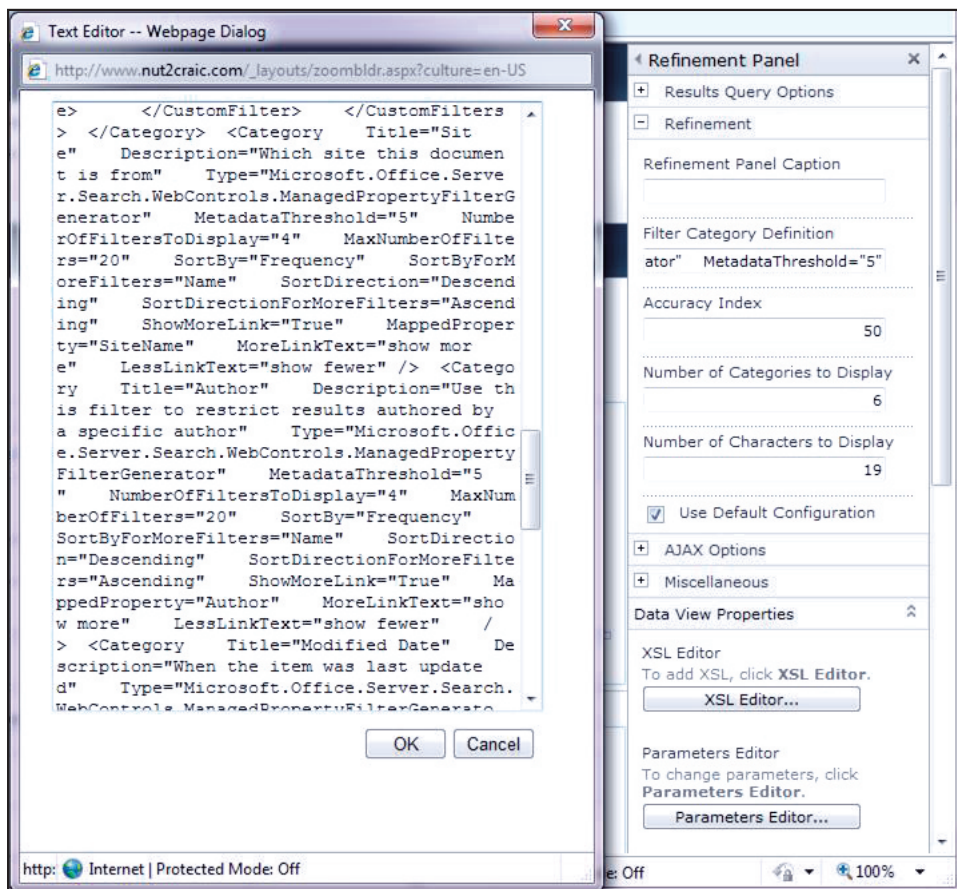
<Category Title="Modified Date" Description="When the
item was last updated" Type="Microsoft.Office.Server
.Search.WebControls.ManagedPropertyFilterGenerator"
MetadataThreshold="5"      NumberOfFiltersToDisplay="6"
MaxNumberOfFilters="0"      SortBy="Custom"
ShowMoreLink="True"      MappedProperty="Write"
MoreLinkText="show more"      LessLinkText="show fewer" >
  <CustomFilters MappingType="RangeMapping" DataType="Date"
    ValueReference="Relative" ShowAllInMore="False">
    <CustomFilter CustomValue="Past 24 Hours">
      <OriginalValue>-1..</OriginalValue>
    </CustomFilter>
    <CustomFilter CustomValue="Past Week">
      <OriginalValue>-7..</OriginalValue>
    </CustomFilter>
    <CustomFilter CustomValue="Past Month">
      <OriginalValue>-30..</OriginalValue>
    </CustomFilter>
    <CustomFilter CustomValue="Past Six Months">
      <OriginalValue>-183..</OriginalValue>
    </CustomFilter>
    <CustomFilter CustomValue="Past Year">
      <OriginalValue>-365..</OriginalValue>
    </CustomFilter>
    <CustomFilter CustomValue="Earlier">
      <OriginalValue>..-365</OriginalValue>
    </CustomFilter>
  </CustomFilters>
</Category>

```

Configuring and Customizing the Refinements Web Part

To view the default XML for the configuration of the refiners on the Refinements Web Part, edit the Web Part and view the contents of the Filter Category Definition text box in the Refinement section, as Figure 2 shows.

Figure 2
Viewing XML for
refiner configuration



As an example of how to add your own refiners, suppose that you've added a custom property called *Instrument* to various items in your body of indexed information. Furthermore, you've configured this property to be a managed property (using SharePoint Central Administration or Windows PowerShell), so it can be used as part of a search query (amongst other things). If you wanted to use the different values of this property as a single filter and display these values in alphabetical order on the search results page, you'd replace the default XML with the code that Listing 2 shows. (Note that if you wanted to add the values as an extra filter rather than as a single filter, then you would simply insert the `<Category>` node into the existing XML.)

Listing 2: Code to Use and Display Property Values as One Filter

```
<?xml version="1.0" encoding="utf-8"?>
<FilterCategories>
  <Category Title="Instrument" Description="Type of
    instrument" Type="Microsoft.Office.Server
    .Search.WebControls.ManagedPropertyFilterGenerator"
    MetadataThreshold="5" NumberOfFiltersToDisplay="10"
    MaxNumberOfFilters="0" SortBy="Name"
    SortDirection="Ascending" SortByForMoreFilters="Name"
    SortDirectionForMoreFilters="Ascending" ShowMoreLink="True"
    MappedProperty="Instrument" MoreLinkText="show more"
    LessLinkText="show fewer"/>
</FilterCategories>
```

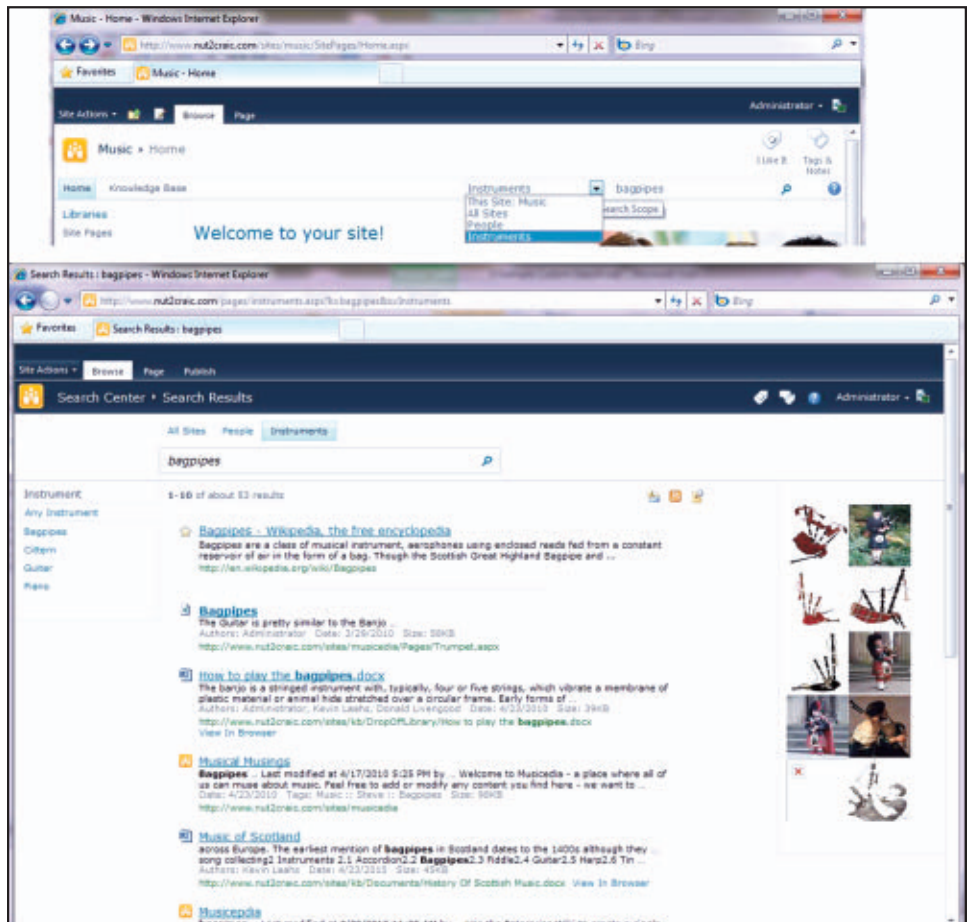
The Category node defines each filter. You can apply many attributes to the Category node of the XML, to control how the refiners within the filter are displayed. These attributes refer to properties that you can set on a FilterCategory WebControl object (see [TechNet](#) for more details). In the code sample in Listing 1, these attributes are the most important:

- **Type.** This attribute controls what is used to determine the contents of the filters; in this case, `ManagedPropertyFilterGenerator`. Developers can add other filter types. Some, such as `TaxonomyFilterGenerator` for managed metadata, are available out of the box.
- **MetadataThreshold.** This attribute controls the minimum number of items that need to be returned in the search results before the refiner will activate.
- **NumberOfFiltersToDisplay.** This attribute controls the number of filters to display in this filter category. If more filters are available, then a More link is shown—so long as the `ShowMoreLink` property is set to `True`.
- **SortBy and SortDirection.** These attributes control the sort order of the displayed filters. `SortBy` can be one of these: `Frequency`, `NumericValue`, `Name`, or `Custom`.

- **MappedProperty.** This attribute controls the managed property that is to be used to build the list of filters for this filter category.

An example of such a Refinements Web Part can be seen in Figure 3. Note the single category of refiners with individual values, shown from the Instrument property.

Figure 3
The Refinements
Web Part



The Refinements Web Part also supports Extensible Stylesheet Language (XSL) to transform the display. Therefore, you can modify the XSL to modify the default display so that it suits your needs. You can access the XSL via the Data View Properties of the Web Part, as

Figure 2 shows. For example, you could replace the textual description of the filter categories with something more exotic, such as an animated image, to liven up your search results page. Figure 4 shows a sample of such an exotic page. (Obviously, it isn't animated!)

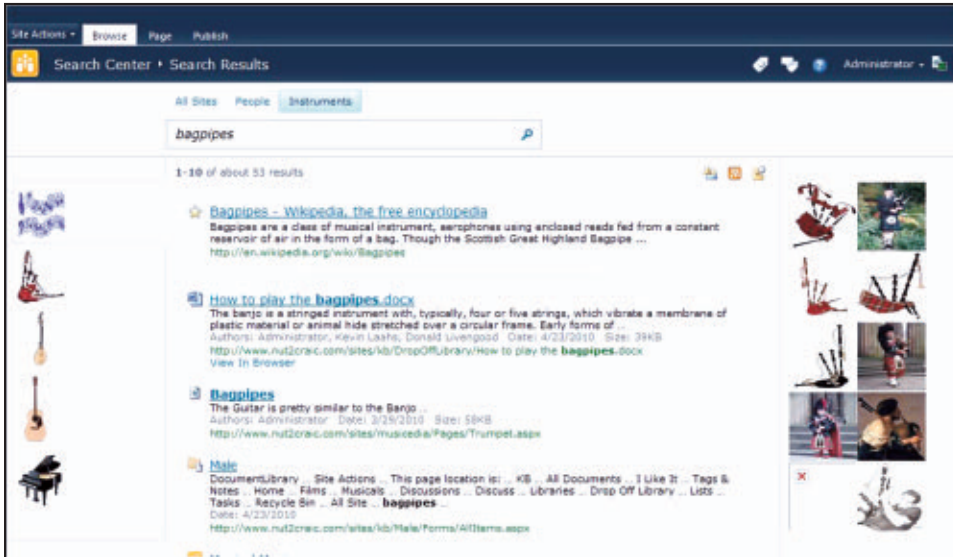


Figure 4

Livening up
filter-category
descriptions

Helping You Help Users

SharePoint Server 2010 delivers many search features that can help you navigate the large bodies of information that typically are found in many enterprises. Many new features help you tailor the search experience to meet your business needs. The Refinements Web Part is one example and can help you simply and effectively lead users to the information that they're looking for. ■

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Product News for IT Pros



BUMI's Latest Cloud Backup & Recovery Service

BUMI (Backup My Info!) announced the availability of the latest version of its online data backup and recovery solution. The updated BUMI solution now includes expanded integration with NetApp storage solutions, increased performance for VMware backups, support for Mac OS X Lion and OS X Snow Leopard, and an enhanced Network Operations Center for improved visibility and better control over customers' backup environments. Key features of the new release include NetApp API Level Integration, VMware 4.1 via vSphere APIs for Data Protection (VADP), and DS-NOC, a new Network Operations Center. The latest BUMI release was automatically deployed for all existing BUMI clients and is currently available to all new clients signing up for BUMI's online data backup and recovery solution. For more information about BUMI's products and services, please visit the [BUMI website](#).



Harmon.ie Targets the iPad

Harmon.ie unveiled harmon.ie for iPad, the first-ever product to bring Microsoft SharePoint document collaboration and social interactions to the iPad. The mobile business community can now easily and securely share documents, get real-time document and colleague-status updates, and connect with colleagues anywhere, anytime. Users can work on a presentation from their desktop, drag and drop it to SharePoint, and send a link to colleagues using harmon.ie in Microsoft Outlook or IBM Lotus Notes. Then, using the iPad, they can see document updates from colleagues while on the go. They can access the latest version of the document, edit it, and share it with

the team when they're back online. The team will receive a real-time update once the revised document is uploaded. Harmon.ie for iPad costs \$19.99 and is available at the [Harmon.ie website](http://Harmon.ie).

SlimWare Utilities Offers Free PC Cleaning and Optimization



SlimCleaner 3.0 includes a new suite of Disk Tools to manage the amount of space taken up by files and secure the contents of various drives. The new Disk Tools in SlimCleaner 3.0 are designed to keep all drives—including internal hard drives, external drives, and flash drives—secure and clear of clutter. The Disk Tools tab is accessible from SlimCleaner's home screen and includes a Disk Summary, Disk Analyzer, Disk Wiper, and Shredder. Squarely benefiting Ultrabook users, Disk Analyzer provides a visual display of a PC's hard drive so that users can analyze the contents and easily identify what's taking up disk space. Disk Summary shows the amount of space available on a PC's disks. Drive Wiper is a clean-up tool that overwrites the raw sectors of a drive with random data to securely erase data that users would like to dispose of. A shredder, with up to 35 overwrite passes, is also part of the Disk Tools section in SlimCleaner 3.0. For more information about SlimCleaner, please visit the SlimWare Utilities website.

Panorama9 Simplifies IT Managers' Lives



Panorama9 announced the launch of a web-based dashboard that manages IT services for small-to-midsized businesses (SMBs). Panorama9 brings IT management to the cloud to help SMBs cut their IT costs while keeping their networks, services, and devices running at peak performance. Panorama9 takes minutes to install and cuts the time spent on administrative tasks—such as patching, inventory, and distribution—in half. An easy-to-use dashboard offers a comprehensive view for the IT pro, with real-time tracking and alerts on company assets, IT availability, security vulnerabilities, non-compliant systems, and more. The company also launched a new patch-management

feature to take the complexity out of managing the endless array of critical updates across all devices, applications, and OSs in an IT environment. Panorama9 is a subscription-based service with tiered pricing plans starting at \$99 per month. For more information, check out the [Panorama9 website](#).



Intel Introduces Cloud-Based Identity Solution

Intel announced that Intel Cloud SSO, a cloud-based Identity and Access Management as a Service (IAMaaS) solution, is now delivered on Force.com, Salesforce.com's social enterprise platform. The solution will help enterprise users utilize their Salesforce credentials to access popular cloud applications. Single sign-on (SSO) from Force.com provides seamless access to applications, such as Box.com, Cisco WebEx, Google Apps, and Salesforce, improving end-user convenience and increasing security while reducing the number of passwords required. Enterprises can rely on Intel Cloud SSO to deliver IAM functions in the cloud; provision, synchronize, and de-provision access to thousands of cloud applications; address security concerns with two-factor mobile-based strong authentication; and deliver comprehensive reporting and auditing features to comply with regulatory requirements. For more information, visit the [Intel Identity website](#).



Flexera Software Announces New AdminStudio Virtual Desktop Assessment Tool

Flexera Software announced the launch of AdminStudio Virtual Desktop Assessment, which accelerates enterprises' migration to user-centric computing and a virtual desktop infrastructure (VDI) while reducing the cost of achieving desktop virtualization objectives. Although VDI promises to yield substantial cost savings and dramatically improve IT resource utilization, migrating to virtual desktops is a time-consuming, costly, and risky undertaking. To maximize the likelihood of virtualization success, all VDI projects should be supported with a thorough assessment of users' current application usage

and likelihood of success. AdminStudio Virtual Desktop Assessment provides essential, vendor-agnostic planning automation capabilities. An easy-to-install virtual appliance monitors key system behaviors of computers, users, and applications, gathering a complete application inventory, and collecting in-depth information on each application, such as CPU performance, online/offline access, input/output, and memory utilization, to reveal virtualization suitability and the complexity of virtualizing that application. For more information, visit the [Flexera website](#).

Smith Micro Announces NetWise Passport

Smith Micro Software announced NetWise Passport, an application control solution for mobile devices. Extending Smith Micro's intelligent traffic-management solution, NetWise Director (formerly Mobile Network Director), NetWise Passport equips wireless operators with policy management tools to shape bandwidth consumption based on application usage. Unauthorized and inefficient applications present a serious threat to mobile network performance and stability. The patent-pending NetWise Passport solution gives operators more control over how applications can access their networks, reducing exposure from inefficient applications that can adversely affect the subscriber experience. The client-based policy controls help carriers provide more value to users and manage bandwidth consumption while keeping away threats from unmanaged applications and devices. For more information, see the [Smith Micro Software website](#). ■

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SUMMARIES of in-depth product reviews on Paul Thurrott's SuperSite for Windows

HTC Titan II

PROS: Windows Phone 7.5 OS; LTE; excellent camera

CONS: Bulky; big form factor; expensive

RATING: ★★☆☆☆

RECOMMENDATION: Had the HTC Titan II shipped as part of the launch wave of Windows Phone 7.5 devices late last year, it most likely would have been the *crème de la crème*. However, coming now as it does in the wake of the excellent Nokia Lumia 900, the Titan II suffers by comparison but for one truly redeeming feature: It has the best camera I've ever seen on a Windows Phone handset, and although it falls a bit short of the lofty standard set by Apple's incomparable iPhone 4S, it's still a stunner. The camera features 16 megapixels of resolution, about twice that offered by any other smartphone, excellent optics, and, as important on Windows Phone, where such things are left to the device maker, a truly useful set of picture-taking

modes and options that includes panorama and intelligent automatic shooting. Beyond this, the Titan II is mostly uninteresting: It has LTE compatibility—a requirement, in my opinion—and a very large body with a huge 4.7-inch screen that some will find unwieldy. Ultimately, the Titan II is a decent Windows Phone handset. But with the Lumia 900 in the market, these days decent isn't enough.

CONTACT: [HTC](#)



Full Review

SkyDrive App Beta

PROS: Simple access to SkyDrive data; Remote Fetch

CONS: Can't determine which parts of SkyDrive are synced; can't sync to multiple locations on a PC; no remote desktop functionality

RATING: ★★★☆☆

RECOMMENDATION: Microsoft is killing off its Windows Live brand, and although it

hasn't explicitly said so, all indications are that it will be killing off its Windows Live Mesh service, replacing it with the new SkyDrive app for Windows 8, Windows 7, and Windows Vista, currently in beta form. SkyDrive maps your cloud-based storage to a folder on your PC that's either synced or not synced (there's no way to determine which parts of SkyDrive are synced—Microsoft tells me this is coming)—so it's an all or nothing affair. You also can't sync folders in SkyDrive to different parts of the hard drive. It does provide a unique new feature called Remote Fetch that lets you remotely navigate through another connected PC via a web interface. Even in its current form, it offers what users have been clamoring for: a simple, Explorer-based method of accessing SkyDrive from a Windows-based PC.

CONTACT: [Microsoft](#)



Full Review

Drobo B1200i

Recently I visited an office lacking network disk space, but found its storage system had empty drive bays. Perplexed, I talked to an overburdened IT administrator, who was frustrated with the file storage system because it was difficult to configure and provision. An office such as this could benefit from investigating the Drobo B1200i.

Rising above the small office/home office (SOHO) market and just below the enterprise market for SANs is the business class Drobo B1200i storage device. For this review, I put Drobo B1200i to the test in a common scenario: provisioning new SAN storage space on a file server.

To get started, I slid six included 2TB Seagate Constellation Serial Attached SCSI (SAS) 7200rpm disks directly into the front slots of the 12-disk bay—no drive carriages or screws were required. Moving to the rear of the unit, I found a removable expansion card with a network management port and three clearly labeled iSCSI network ports, as Figure 1 shows. (The device provides only iSCSI storage services.) By default, the management port is a DHCP port, so I simply connected it to my LAN through a Category 6 network cable. To immediately take advantage of the storage, I used a Cat 6 network cable to connect the iSCSI 1 port on the Drobo B1200i device to a network card port on my Windows Server 2008 R2 server.

At that point, I just needed power, so I connected the removable and redundant power supplies in the rear. One power supply was a



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Figure 1
The backside of Drobo B1200i

The ease with which you can expand storage capacity and recover from a failure is impressive.

UPS. The other one was a UPS on a dedicated power circuit, which is a common method to provide protection from UPS or circuit failure. I powered up the 3U rack-mountable Drobo B1200i device using the rear power switch. The unit has four rear fans in a single removable unit and two fans in each power supply. Due to the fan noise, it's most at home in the data center or an isolated area for computer systems.

Using a Windows 2008 R2 server (Apple Macintosh is also supported), I installed the management console with a few clicks, then watched it easily locate the Drobo B1200i device by searching the network. The easy-to-use dashboard features a clickable representation of a Drobo B1200i device, as Figure 2 shows. You use this slick GUI to not only check the status of the storage disks but also to configure the storage device. After I configured the IP addresses for the network card port on the server and the iSCSI 1 port on the Drobo B1200i

device, network connectivity was established.

The best part of using Drobo B1200i was provisioning storage on the server. I added a 2TB volume through the New Simple Volume Wizard by selecting NTFS as the format type, choosing a



Figure 2

The management console for Drobo B1200i

drive letter, and specifying the volume size. The management console configured the iSCSI initiator in Windows, formatted the partition, and automatically created the volume in Windows. Although I used NTFS, other format types are available. Notably, the multi-host format type is available for virtualization servers (e.g., VMware vSphere, Citrix Systems XenServer), and the HFS+ format type is available for Macs.

Drobo B1200i automatically manages storage. It aggregates all available storage into a single thin provisioned storage pool in order

to allow overprovisioning of disk space. If you reach the maximum storage capacity, you can simply add more drives or add larger drives to the storage pool. Drobo B1200i doesn't perform deduplication.

The ease with which you can expand storage capacity as well as recover from a failure is impressive. In my testing, I added a few consumer-grade drives to the storage mix. One failed soon afterward and another was too small for production use, so I swapped them both out with 2TB drives. Drobo's proprietary BeyondRAID technology, which is configured to protect from two-drive failures by default, rebuilt the data protection for the array and expanded the drive space at the same time. No configuration was necessary.

Drobo B1200i is appropriate for business and enterprises. It has many benefits for super busy IT administrators, such as user-replaceable modular components, easy-to-provision storage, and easy-to-expand storage for the growing drive needs of businesses. ■

InstantDoc ID 142674

Drobo B1200i

PROS: Quick setup and expandability; excellent disk and power supply redundancy; multiplatform support; easy-to-use management software; well documented

CONS: All network interfaces on one physical card; no same-day support options

RATING: ★★★★★

PRICE: \$11,995 for 12TB (six 2TB hard disk drives); \$14,995 for 24TB (twelve 2TB hard disk drives); \$17,995 for 18TB (nine 2TB hard disk drives); \$17,995 for 600GB (three 200GB solid state drives)

RECOMMENDATION: Setting up a SAN can be difficult, but the Drobo can be installed by IT pros in an afternoon. It features redundancy where it's most needed—in disks and power supplies. Well documented, it's a truly expandable system that's appropriate for virtualization environments, file servers, disk-to-disk backup storage, and more. Support for Mac, VMware, Linux, and multiple versions of Windows rounds out this versatile SAN.

CONTACT: [Drobo](#) • 866-997-6268 or 408-276-8400

HP X5520 G2 Network Storage System



**Michael
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is senior technical director for *Windows IT Pro* and *SQL Server Pro* and author of *Microsoft SQL Server 2008 High Availability with Clustering & Database Mirroring* (McGraw-Hill).

Email



New computing trends such as virtualization, the private cloud, big data, and mobile computing have changed the IT landscape quicker in the past couple of years than it has ever changed before. These trends have also fueled an explosion in data storage requirements. The HP X5520 G2 Network Storage System is designed to address the storage concerns of medium- and large-sized organizations.

Dissecting the System

The HP X5520 G2 is two-node, active/active mid-range NAS cluster with shared storage. The fact that it's a two-node appliance means it has two X5460sb server blades in the chassis. Each server blade has one Intel Xeon quad-core E5620 processor. The X5520 G2 comes standard with 48GB [Double Data Rate 3](#) (DDR3) Registered Error-Correcting Code (ECC) RAM. The RAM is divided into 24GB per X5460sb server blade, and the unit supports a maximum of 348GB per server. The X5520 G2 is delivered in a 3U chassis. Internally, it can provide up to 32TB of storage capacity and is expandable to more than 100TB externally by using HP D2000 Disk Enclosures. For connectivity, the X5520 G2 provides two 10 Gigabit Ethernet (GbE) NC553i FlexFabric ports per controller. In addition, there are two 1GbE ports per controller and one 1GbE NC382m multifunction port per controller. You can see a picture of the HP X5520 G2 in Figure 1.

Figure 1

HP X5520 G2 Network
Storage System



The HP X5520 G2 is delivered as an appliance, which essentially means that the OS is preinstalled. The system that I tested came with Windows Storage Server 2008 R2 SP1, Enterprise x64 Edition, pre-installed and activated. Windows Storage Server 2008 R2 provides a number of advanced storage-management features, including:

- File deduplication, which can recover up to 40 percent of disk space
- File Classification Infrastructure, which enables context-based security
- Support for functioning as a hosted BranchCache server, which provides efficient remote-office support
- Support for user storage quotas
- Storage reporting

The HP X5520 G2 supports both file and block access, allowing it to function as a NAS device and as an iSCSI SAN. It supports the Common Internet File System (CIFS), Server Message Block (SMB), NFS, iSCSI, HTTP, FTP, and WWW Distributed Authoring and Versioning (WebDAV) protocols and can be used as an iSCSI target. The Windows Storage Server 2008 R2 iSCSI Software Target provides block-level storage as disk volumes, which can be mounted by any client running an iSCSI initiator. The iSCSI target uses space that's allocated as Virtual Hard Disks (VHDs) within the HP X5520 G2. This provides a simplified model for storage management.

Getting the System Up and Running

With the system weighing in at about 190 pounds, installing the HP X5520 G2 is definitely a two person job. Connections for the server were a bit different from a standard rack-mount server. The power button is in the back, showing that the unit is really meant for hands-off operations. Notably, there are no keyboard, mouse, VGA, or USB ports on the back of the HP X5520 G2. Likewise, the unit doesn't have a built-in DVD drive. To connect a monitor and keyboard to the unit, you

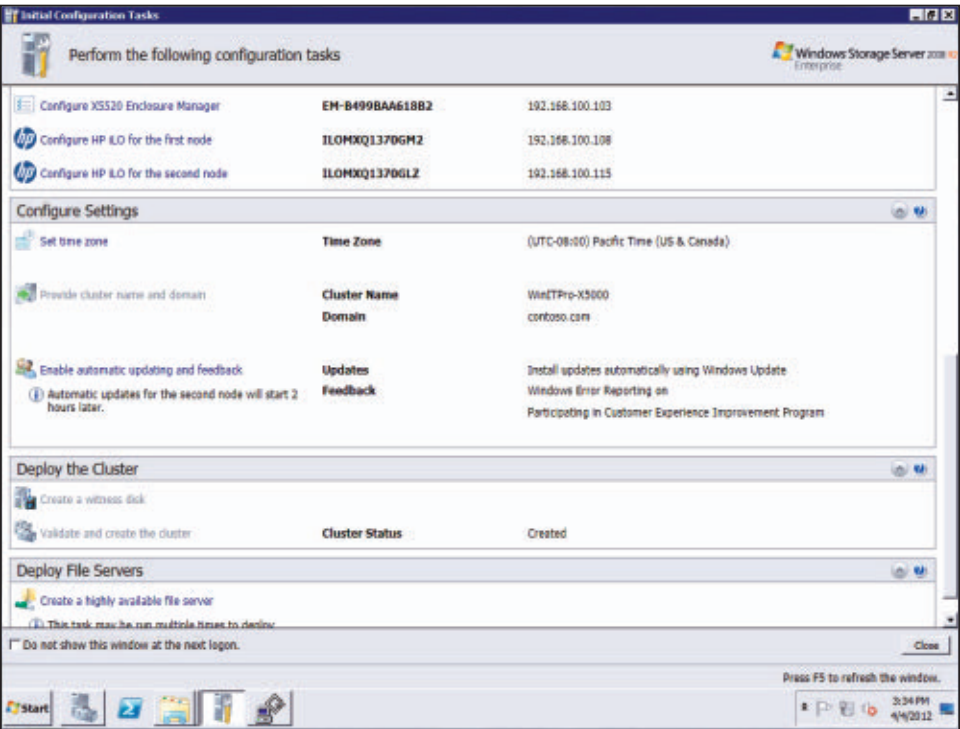
The HP X5520 G2 can function as a NAS device and as an iSCSI SAN.

use a multifunction port that provides two 9-pin VGA connectors (one male and one female) and two USB ports.

The initial power up is performed by pressing the power button in the back of the unit. The initial setup of the appliance is performed through HP’s Integrated Lights-Out (iLO) out-of-band management technology. Like most small form factor units, the system is loud and should be run in a noise enclosure.

After initially powering up the chassis, each node needs to be powered up using the iLO console. Then, you can connect to one of the nodes through the iLO console, where you can use the Set Up Wizard to perform the initial server configuration. The first startup configuration allows you to configure basic connectivity such as the networking requirements. After the initial configuration, the system reboots and the HP Initial Configuration Tasks window is displayed. You can see the Initial Configuration Tasks window in Figure 2.

Figure 2
Initial Configuration
Tasks window



To complete the setup, you basically step through each of the different tasks. The first few tasks prompt you for each node's networking configurations, the time zone, and some basic cluster information. After completing the *Provide cluster name and domain* task, both nodes will reboot. The remaining tasks include creating the two-node cluster and deploying one or more file servers on it. Overall, setup was simple, especially considering that I was configuring a two-node cluster that contained highly available file servers. The setup process took about an hour to go from power up to file-serving availability.

I tested the system both as a NAS device (file access) and as an iSCSI target (block access). The system functioned flawlessly for both types of roles.

As a NAS device, it fit right in with my existing Windows infrastructure. Clients connected to the client access point configured in the wizard, and the file shares were all highly available and protected by the built-in Windows Storage Server failover clustering. The file deduplication capabilities worked as advertised.

As an iSCSI target, I found that the HP X5520 G2 was fully compatible with Hyper-V's Live Migration. The system consumed about 120.9 watts while it was running and active.

A Great Storage Solution

The HP X5520 G2 is a great storage solution. Because the Windows Storage Server 2008 R2 OS is preinstalled, the HP X5520 G2 can be deployed very rapidly. Built-in clustering provides high availability, and the OS's ability to perform deduplication provides significant storage savings and efficiency. The HP X5520 G2's ability to provide both file and block access enables it to be flexible enough to handle all the storage requirements of medium- and large-sized businesses. ■

InstantDoc ID 142823

HP X5520 G2 Network Storage System

PROS: Rugged construction; excellent price/performance ratio; very flexible storage capabilities; built-in high availability; easy setup

CONS: Rear-mounted power button difficult to access; front-mounted keyboard and VGA attachment didn't fit well in my rack

RATING: ★★★★★

PRICE: Starts at \$30,229 (tested configuration: \$30,229)

RECOMMENDATION: The HP X5520 G2 is a great choice for businesses looking to add highly available file shares or iSCSI storage to their infrastructure.

CONTACT: HP • 800-752-0900 or 650-857-1501

Harmon.ie for SharePoint, Outlook Edition



**Russell
Smith**

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Email



Twitter



There's a plethora of add-ons for Microsoft Outlook that claim to make working with Microsoft SharePoint easier. In my experience, many of them leave much to be desired, so I was keen to try Harmon.ie for SharePoint, Outlook Edition, to see if it could step up to the challenge of providing seamless SharePoint integration.

Accessing SharePoint documents can be a challenge for new users. Although it's possible to go through the SharePoint team site, I've always felt that you should be able to directly access them through Microsoft Office and Windows. Harmon.ie does this by giving users a single-pane view of SharePoint workspaces in the Outlook UI. As Figure 1 shows, the pane includes a Documents tab, where users can find, work on, and share SharePoint documents, and a People tab, where users can find, get information about, and collaborate with other SharePoint users. In addition, Harmon.ie lets users save and manage their email messages on SharePoint.

Installing and Setting Up the Add-On

Harmon.ie is easy to install and can be distributed using Group Policy Software Installation, Microsoft System Center Configuration Manager (SCCM), or a similar product. SharePoint sites can be preconfigured in Harmon.ie to get users up and running quickly. As part of its mission to increase SharePoint adoption, Harmon.ie provides administrators with reports on SharePoint usage, which are based on data from SharePoint, Outlook, and Microsoft IIS logs.

I tested Harmon.ie with Microsoft Office 365, and adding my site was relatively easy. I was stumped for a while on which authentication method was needed, which turned out to be *Use browser authentication*

instead of entering my Office 365 username and password directly into Harmon.ie. It would have been nice if the dialog box had given a hint about the correct authentication method to choose.

Harmon.ie adds a delay to the Outlook startup time, but this is only really noticeable the first time you start Outlook every day, before the binaries are cached for faster launching. More important, Harmon.ie doesn't render Outlook unstable, which can be a concern when working with third-party add-ons.

Working with Documents

After adding the Office 365 site, I tried to upload a folder via Harmon.ie and received an error message that said uploading a folder isn't allowed. Although you can map a network drive to SharePoint and upload a folder that way, you need to know what you're doing. I had hoped that Harmon.ie might make the process easier.

Searching documents worked well, although the requirement to click the Search button (or press Enter) to start the search seemed a little antiquated considering how the search functionality on the Windows Start menu works as you type. A nice touch is the document preview at the bottom of the Harmon.ie pane. It saved me from having to open documents to check their contents.

Harmon.ie's Documents tab gives information about each document in a SharePoint library, including when it was last modified and by whom. The view can be filtered to show only checked-out documents. The drag-and-drop functionality is handy; it works from both Windows Explorer and Outlook. Cut and paste operations can also be performed using the

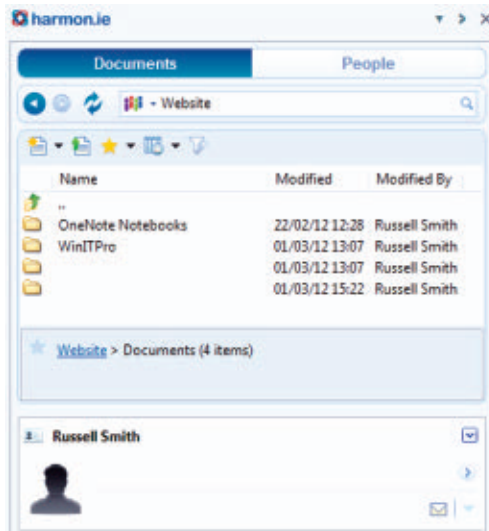


Figure 1

The Harmon.ie pane in Outlook

The benefits Harmon.ie provides outweigh the minor disadvantage of slowing Outlook a little.

Harmon.ie for SharePoint, Outlook Edition

PROS: Outlook integration makes using SharePoint easy

CONS: Has a minor impact on Outlook performance; subscription-based license

RATING: ★★★★★

PRICE: \$50 per user a year; volume discounts available for 100 or more users

RECOMMENDATION: This solution should prove useful for any sized organization intending to move to SharePoint. With virtually no learning curve involved, Harmon.ie should make it easier for users to locate and work with documents and email on SharePoint.

CONTACT: Harmon.ie • 800-624-6946 or 408-907-1339

context menu. The Favorites functionality lets users follow a SharePoint library so that their Harmon.ie feed will display changes to existing documents and notify them if new items are added to the library. Finally, there's integration with Microsoft Office Communications Server (OCS) and Microsoft Lync so that users can initiate calls or chat sessions.

Working with Email

Harmon.ie lets users decide if email messages and attachments should be saved to SharePoint before they're sent. Alternatively, this setting can be centrally configured by system administrators. All email messages saved to SharePoint as well as email metadata are mapped to SharePoint columns to make sure the information can be searched.

Administrators can configure Harmon.ie to automatically replace attachments in outgoing messages with links, which is great way to save space in a Microsoft Exchange database. The whole process of replacing an attachment with a link and saving the data to SharePoint adds a slight delay when sending an email, but nothing too significant. Administrators can also configure Harmon.ie to automatically delete outgoing messages from Exchange after they're sent, designating SharePoint as the main storage location for them.

Benefits Outweigh the Slight Slowdown

The benefits Harmon.ie provides outweigh the minor disadvantage of slowing Outlook a little. In the month I've had it installed on my system, there have been no crashes or problems created by the add-on. Because of the features built into Harmon.ie, I haven't needed to visit my SharePoint team site. Considering that Outlook is where the majority of office workers spend most of their time, the product is successful in that users don't need to leave the Outlook UI. The learning curve to use Harmon.ie is short. Users might need to be told about its drag-and-drop functionality, but otherwise it's intuitive so it's unlikely that specialized training will be needed. ■

InstantDoc ID 142927

Backup Appliances

Sophisticated solutions for complex backups

Day after day, in the cubicles of IT pros around the world, you'll hear questions such as: Do we have a current backup? When was our last good backup? Can we restore from our backup? Why did the backup fail? Questions like these make backups one of the most discussed items in IT.

Backups can be a painful chore, fraught with problems such as failed backup jobs, broken tapes, bizarre error messages, and the dreaded case of being unable to restore from what was supposedly a successful backup. To avoid such problems, IT pros are always looking for better ways to produce quality backups consistently, with as little impact to production operations as possible.

A few decades ago, backups were simpler. You installed a tape drive, procured some tapes, installed backup software, and set up a single full-backup job to run once a day. Everything important could fit on one tape, and a backup could finish overnight because no one was working then.

Today, backups are far more complex. Backing up directly from disk to another disk is common, as are tape autoloaders, robotic libraries, multiple backup jobs, and tight backup windows due to our "always on" society. Nowadays, there's never a good time to take a backup.

Fortunately, there are many vendors that produce backup appliances in an effort to remedy what ails the IT pro in the world of backups. I recently spoke with representatives from two such vendors—[Symantec](#) and [NetApp](#)—to explore their offerings and see how those offerings compare with traditional backup solutions.

Symantec

Symantec is probably one of the most well-known backup software vendors, offering such products as Backup Exec and NetBackup.



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Email

**Nowadays,
there's never a
good time to
take a backup
due to our
"always on"
society.**

Symantec aligns its backup appliances with these familiar software products. But how is one of these appliances a better fit than simply installing a copy of Backup Exec or NetBackup?

According to Peter Elliman, a senior manager for product marketing at Symantec, it's a matter of time. "Why spend time building your backup infrastructure when you can get a ready-made appliance? Building your backup structure from scratch isn't always the best use of your time." As most IT pros know, there is truth to this statement. Building a backup solution might not be terribly difficult, but building one that's consistently reliable and that doesn't require lots of babysitting can be challenging.

"We surveyed our customers and one thing that came out was that people have three to seven different backup servers," Elliman noted. "Customers would switch [solutions] if backup speed doubled." Not only do customers want backup speed to increase, but they also want to reduce management time. One of the goals of the Symantec appliances is to reduce the amount of time spent managing backups by 80 percent.

Aidan Finley, a product marketing manager at Symantec, expanded on how the Backup Exec appliance, which Figure 1 shows, can help customers. "You just buy the box and it has everything: software, hardware, and licensing, including Backup Exec 2012, which includes a brand-new user interface." The appliance also includes features that everyone in IT is interested in these days, such as granular restoration of VMware virtual machines (VMs). Finley elaborated on the granular recovery options with an example: "In a VMware guest machine

Figure 1
Symantec's Backup
Exec appliance



running Exchange, our granular recovery technology allows for recovery of individual mail messages.”

The cloud integration of these appliances is strong, according to Elliman. “We support backing up to AWS and Rackspace with WAN acceleration, typically at a 2x improvement, but sometimes up to 10x.” Finley was quick to expand on some other features that make the appliances appealing, such as bare-metal recovery and the ability to back up from an HP box and restore to a Dell box, for example. “We also include physical-to-virtual recovery,” said Finley. “You can restore a physical server to a hypervisor, and our software injects the recovered machine right into the hypervisor. You can also replicate VMware machines through the appliance to the cloud.” Plus, although the appliances back up to disk by default, tape is still supported as an option for those customers who need it.

NetApp

What if you already have a storage vendor, and if you have duplicated storage stacks between two or more physical locations? Can that infrastructure be leveraged as a form of backup appliance? To explore these possibilities, I spoke with Nathan Moffitt, senior manager of Backup and Recovery Solutions at NetApp.

“We have something based on a modular architecture. It’s more of a platform than a specific product,” Moffitt said. For example, if you have a NetApp Fabric-Attached Storage (FAS) system, which Figure 2 shows, already in place, you can leverage its ability to take snapshots as the primary backup-and-restore method. The abilities of the NetApp “appliance” solution go beyond that, though. “Because we’re building everything off of snapshots, the backup image you have on the FAS system that’s being used as an appliance can be mounted,” explained Moffitt. You don’t have to do a restore operation to utilize the backed-up data. You can spin a VM off of the snapshot and start running it from there. You can start utilizing data immediately and migrate to a production system later. It allows us to accelerate our recovery time.”

Figure 2
NetApp's FAS system



NetApp's platform model enables the company to partner with other vendors and even work in environments where the primary storage vendor isn't NetApp. "In non-NetApp environments, we developed some software and partnered with others, such as [Syncsort](#). Syncsort tracks the changes made to files on a block level and transfers the changes to a NetApp device," Moffitt explained. NetApp has even done work to integrate the FAS system with products from traditional backup vendors, including Symantec. "Within the last year, we've added the ability for [CommVault](#) Simpana and Symantec NetBackup to utilize a FAS system for disk to disk to tape [backups], with the NetApp system as the primary backup storage and the tape using the NetApp snapshots for secondary protection."

For many IT organizations, however, the capabilities of the NetApp FAS system may go beyond the needs of the environment—and the budget. "In certain cases, a traditional backup appliance might be the way to go," Moffitt acknowledged. "But in other cases, a flexible, extensible platform might be the way to go."

Many Appliance Solutions from Which to Choose

Regardless of your requirements, you'll find plenty of vendors that offer capable appliance solutions to fit just about any backup service level agreement (SLA). No matter which appliance you choose, back up often and make sure you test your restoration process. A backup is only as good as your ability to restore from it. ■

InstantDoc ID 143078

Network Monitoring on Mobile Devices

Use your smartphone to monitor your company's network devices

Have you left for work recently and accidentally forgotten your smartphone? No doubt you turned back to retrieve it. Our smartphones are no longer just devices that we use to make phone calls; they've become extensions of our daily lives. If you already have this mobile computing platform attached to your hip, why not add the capability to monitor your company's network devices?

This month's Buyer's Guide lists network monitoring solutions that include a mobile component. Before evaluating these solutions, though, you should determine your monitoring needs and the mobile-specific features you want.

Determining Monitoring Needs

Some network monitoring solutions are installed and managed exclusively on a platform, whereas others are platform independent. So, before you begin looking at network monitoring solutions, it's helpful to identify the OSs you need to monitor. For example, will you be monitoring only Windows OSs or a mix of OSs? You should also identify other elements you need to monitor, such as databases, applications, and websites.

Besides identifying what you need to monitor, you should consider the type of monitoring that's needed. For example, do you simply need to monitor a website service to make sure it's running, or do you need to make sure that the web page has a specific word or phrase published at all times? Do you want to keep track of disk utilization, CPU utilization, memory utilization, server uptime, and/or



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Email



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Before evaluating these solutions, you should determine your monitoring needs and the mobile-specific features you want.

packet loss? Knowing these types of details ahead of time can help you narrow down the number of solutions to evaluate.

Another consideration is how the monitoring solution keeps track of what's going on within the network. There are two main approaches:

- Remote monitoring with SNMP, Windows Management Instrumentation (WMI), or another technology
- Local monitoring, where an agent is installed onto each host or device

Remote and local monitoring have advantages and disadvantages, but the best solutions typically support a hybrid of both.

With the popularity of the cloud (i.e., someone else's data center over which you have limited control), some network monitoring vendors now offer a Software as a Service (SaaS) model for their products. The biggest advantage to SaaS is that you can quickly add services without adding more overhead to your data center. At the same time, you also have to consider the security implications and reliability of your Internet connection. Make sure you're comfortable with the ports that will need to be opened on your network firewall. Finally, check regulatory compliances before considering an SaaS solution for any service.

Over the past 12 years, Active Directory (AD) has helped us consolidate the number of username and password combinations that we need to remember. Make sure that your new monitoring solution takes advantage of this authentication mechanism. Some monitoring solutions will integrate directly with AD, whereas others might require a third-party helper, such as Remote Authentication Dial-In User Service (RADIUS). Make sure that the product you choose won't require you to memorize yet another username and password.

Determining Mobile-Specific Features

Each of the vendors listed in the Buyer's Guide table will most likely be able to satisfy one or more of the aforementioned criteria for your particular environment. Now let's look at the mobile-specific features that you might find valuable.

If your company uses one of the more popular mobile smartphones, such as Apple iPhone, Google Android, or Windows Mobile, there might be a platform-specific application for your phone. However, if you're using a less popular smartphone such as Palm or Research In Motion BlackBerry, your options might be limited. Another option is to choose a product that uses a special "mobile version" of the network monitoring solution's website. This can "future proof" the solution, because these products usually work with any mobile browser. Some of these mini-websites work just as well as or better than a native smartphone application.

The functionality of the smartphone application or mobile website can vary greatly from vendor to vendor. Some are customizable, whereas others are simply "status pages." Having a customizable mobile application can be a very important feature if you're monitoring hundreds of devices. A hundred devices won't fit on a mobile screen, so take into account how the UI is laid out and if it can be changed to suite your requirements.

In addition to simply monitoring whether a server or service is running, some of these network monitoring solutions are actually mini-troubleshooting tools. For example, you can acknowledge the alert, dive down through the UI to find the exact service that's down, or connect to the server using remote-desktop or command-prompt functionality for further troubleshooting.

Carefully Consider Your Options

Monitoring the network services that your company relies on isn't a new task. Using your powerful mobile device to augment this capability just makes sense. Carefully consider your options as you use the Buyer's Guide table to evaluate each vendor. ■

InstantDoc ID 143089

Product	Applications Manager ManageEngine	Desktop Central ManageEngine
Price	\$795 per year for 25 applications or servers	\$545 for 50 computers
Do you have a custom mobile app for accessing your product?	Custom mobile app for Apple iOS	No
Is there an extra charge for a mobile license or mobile app?	No	N/A
Is your product accessible through a mobile version of a website? If yes, is such access limited by a mobile platform or mobile browser?	Mobile browser supported on all platforms. An iOS version is scheduled for release in June 2012.	Accessible through a mobile version of a website, with no limitations.
What does your product monitor?	Monitors servers (e.g., Windows, Linux, IBM AIX, IBM AS/400), virtual servers (e.g., VMware, Hyper-V), Amazon EC2, application servers (e.g., JBoss, Oracle WebLogic, IBM WebSphere, GlassFish), databases (e.g., SQL Server, Oracle, MySQL, Sybase, IBM DB2, PostgreSQL), Exchange, Memcached, SAP, Oracle E-Business Suite, web applications, SNMP devices, WMI, and JMX dashboards.	Monitors laptops, desktops, servers, and mobile devices.
How does your product monitor devices or applications?	Uses SNMP, WMI, Secure Shell (SSH), database queries for databases, JMX, Webservice calls for application servers, and vendor-specific mechanisms.	Agent is installed in each computer. Uses Apple Push Notification Service for mobile devices.
How or where is your monitoring product deployed?	Local Windows or local Linux platform	Local Windows platform
What authentication mechanisms does your product support?	Active Directory (AD) and custom authentication methods	AD and local authentication
Can new alerts be acknowledged from the mobile application?	Yes	No
Can the mobile app main screen or dashboard be customized?	Yes	No
Does the mobile app support adding "favorites" or critical servers to the main screen?	No	No
What ports are required to be opened on the network firewall?	HTTP port for the Applications Manager server	TCP ports 8020 and 8383
Does the mobile app include remote desktop or remote control functionality from the mobile device?	No	No
Does the mobile app support basic troubleshooting tools such as ping and traceroute?	Yes	No
Does the mobile app include a command or console prompt from the mobile device?	No	No
Does the mobile app support multiple accounts or allow quick server switching?	Multiple accounts	Neither
What indicators can be displayed with the mobile app?	All performance metrics and availability	System uptime report and user logon reports with history

Editor's Note: Some vendors you might expect to see in this Buyer's Guide said they didn't have a product that exactly matched the criteria or didn't respond to our requests for information about their products.

Product	IT360 ManageEngine	OpManager ManageEngine
Price	Based on configuration	\$1,995
Do you have a custom mobile app for accessing your product?	Custom mobile app for iOS	No
Is there an extra charge for a mobile license or mobile app?	No	N/A
Is your product accessible through a mobile version of a website? If yes, is such access limited by a mobile platform or mobile browser?	Mobile platform currently available only for iPad, but Android support is planned.	Accessible through a mobile version of a website, with no limitations.
What does your product monitor?	Monitors networks, servers, applications, and bandwidth. Has an IT Infrastructure Library (ITIL)-ready service management module for ticket and service level agreement (SLA) management.	Monitors network devices, WANs, VoIP links, servers (e.g., Windows, Linux, Solaris, HP-UX, IBM AIX), virtual servers (e.g., VMware ESX, Hyper-V), and other IT infrastructure components.
How does your product monitor devices or applications?	Uses SNMP, WMI and SSH. Is agent-based for end-user experience monitoring.	Uses agentless and industry standard management protocols, including SNMP, WMI, Command-Line Interface (CLI—Telnet or SSH-based connectivity), VMware Vendors API, Cisco IP SLA, Internet Control Message Protocol (ICMP) ping, and Cisco Discovery Protocol (CDP) for L2 and L3 mapping.
How or where is your monitoring product deployed?	Windows platform	Local Windows platform and local Linux platform (on-premises software)
What authentication mechanisms does your product support?	AD	Proprietary authentication mechanism
Can new alerts be acknowledged from the mobile application?	Yes	Yes
Can the mobile app main screen or dashboard be customized?	No	No
Does the mobile app support adding “favorites” or critical servers to the main screen?	No	No
What ports are required to be opened on the network firewall?	Port 8080 or 8443 (port is configurable)	Web port in which the product is running (i.e., server-name; port-number)
Does the mobile app include remote desktop or remote control functionality from the mobile device?	No	No
Does the mobile app support basic troubleshooting tools such as ping and traceroute?	No	Yes
Does the mobile app include a command or console prompt from the mobile device?	No	No
Does the mobile app support multiple accounts or allow quick server switching?	Neither	Both
What indicators can be displayed with the mobile app?	Disk, CPU, memory utilization, servers and other network devices, health status, and alarm status	Availability, CPU, memory, disk, and traffic utilization metrics; port-wise traffic utilization for network devices; recent alarms; critical devices; and custom device groups or maps

Product	Password Manager Pro <i>ManageEngine</i>	ServiceDesk Plus On-Demand <i>ManageEngine</i>
Price	Starts at \$495 per year	Starts at \$14 per month
Do you have a custom mobile app for accessing your product?	No	Custom mobile app for iOS
Is there an extra charge for a mobile license or mobile app?	Not applicable	No
Is your product accessible through a mobile version of a website? If yes, is such access limited by a mobile platform or mobile browser?	Accessible through a mobile version of a website, with no limitations.	Accessible through a mobile version of a website, with no limitations.
What does your product monitor?	Monitors access to shared passwords. Baselines passwords and monitors them for any changes in target systems.	Monitors asset tracking for desktops (Windows and UNIX), servers (Windows and UNIX), printers, switches, routers, and other network devices.
How does your product monitor devices or applications?	Uses WMI, CLI over SSH, and specific APIs.	Probe installed in customer network uses SNMP, CLI, and WMI. For desktops, can use additional option of browser plug-in collecting asset information and sending it to the application.
How or where is your monitoring product deployed?	Local Windows platform and local Linux platform	Software as a Service (SaaS) hosted in U.S. data centers; probes deployed in customer networks for data collection
What authentication mechanisms does your product support?	AD, LDAP, Remote Authentication Dial-In User Service (RADIUS), and RSA SecurID	AD
Can new alerts be acknowledged from the mobile application?	No	No
Can the mobile app main screen or dashboard be customized?	No	No
Does the mobile app support adding "favorites" or critical servers to the main screen?	No	No
What ports are required to be opened on the network firewall?	None	None
Does the mobile app include remote desktop or remote control functionality from the mobile device?	Yes	No
Does the mobile app support basic troubleshooting tools such as ping and traceroute?	No	No
Does the mobile app include a command or console prompt from the mobile device?	Yes	No
Does the mobile app support multiple accounts or allow quick server switching?	Neither	Neither
What indicators can be displayed with the mobile app?	N/A	Service desk application with asset tracking and management

Product	PRTG Network Monitor <i>Paessler AG</i>	Mobile Admin <i>SolarWinds</i>
Price	\$400 for 100 sensors, \$1,350 for 500 sensors, \$2,230 for 1,000 sensors, \$4,700 for 2,500 sensors, or \$10,800 for unlimited sensors; corporate license is \$32,400	\$695 per seat (unlimited mobile devices per seat)
Do you have a custom mobile app for accessing your product?	Custom mobile app for Google Android and iOS	Custom mobile app for Android, BlackBerry, iOS, and other mobile platforms
Is there an extra charge for a mobile license or mobile app?	The Android app is free; the iOS app (iPRTG) is \$11.99	No
Is your product accessible through a mobile version of a website? If yes, is such access limited by a mobile platform or mobile browser?	Supports iOS 3.2 and later, Android 2.1 and later (including Honeycomb update), Research in Motion BlackBerry 6 and later, Windows Phone 7 and later, WebOS 1.4 and later, MeeGo, Amazon Kindle 3 and later, Firefox Mobile, and Opera Mobile 11 and later.	The Mobile Admin server incorporates a web server that manages all client and browser communications with Mobile Admin. The web server enables Mobile Admin to be deployed without dependence or additional load on existing Microsoft IIS servers.
What does your product monitor?	Monitors bandwidth, usage, activity, uptime, SLA monitoring, network traffic and behavior analysis, Cisco routers, SQL Server servers, and native and agentless Linux monitoring.	Integrates and monitors more than 40 IT management products, including Windows, VMware, AD, Symantec Backup Exec, and BMC Remedy.
How does your product monitor devices or applications?	Can use more than 130 sensor types, including ping, HTTP, WMI, SMTP, POP3, DNS, SNMP, NetFlow v5/v9, sFlow v5, jFlow v5, packet sniffing, sensors for monitoring virtualized environments (e.g., VMware, Hyper-V, Parallels Virtuozzo, Xen), and dedicated hardware sensors for Dell, HP, and APC devices.	The Mobile Admin server integrates with IT management applications. The Mobile Admin Client connects to the Mobile Admin server securely through VPN, RADIUS, RSA, or BlackBerry Enterprise Server's (BES's) Mobile Data Services.
How or where is your monitoring product deployed?	Local installation on Windows Server 2008, Windows Server 2003, Windows 7, Windows Vista, and Windows XP	Client application installed on the mobile device; Mobile Admin server deployed at the customer's site
What authentication mechanisms does your product support?	AD integration and local user accounts	BES (BlackBerry devices), VPN (iOS and Android devices), HTTP Secure (HTTPS—iOS, Android, and BlackBerry devices), Mobile Admin Proxy, three different levels of authentication, and AD integration
Can new alerts be acknowledged from the mobile application?	Yes	Yes
Can the mobile app main screen or dashboard be customized?	Yes	Yes
Does the mobile app support adding "favorites" or critical servers to the main screen?	Yes	Yes
What ports are required to be opened on the network firewall?	Web server port (in most cases, port 443 but depends on Network Address Translation—NAT)	HTTP port 4054, HTTPS port 4055, or proxy port 4056 (port is configurable)
Does the mobile app include remote desktop or remote control functionality from the mobile device?	No	Yes
Does the mobile app support basic troubleshooting tools such as ping and traceroute?	Yes	Yes
Does the mobile app include a command or console prompt from the mobile device?	No	Yes
Does the mobile app support multiple accounts or allow quick server switching?	Neither	Multiple accounts
What indicators can be displayed with the mobile app?	Anything you can create a sensor for, including disk utilization, CPU utilization, memory utilization, server uptime, and packet loss	500 distinct functions (full list at http://www.roveit.com/featurespricing)

Product	Spiceworks Mobile <i>Spiceworks</i>	Site24x7 <i>Zoho</i>
Price	Free	Starts at \$1
Do you have a custom mobile app for accessing your product?	Custom mobile app for Android and iOS	Custom mobile app for Android and iOS
Is there an extra charge for a mobile license or mobile app?	No	No
Is your product accessible through a mobile version of a website? If yes, is such access limited by a mobile platform or mobile browser?	Supports tablet devices that support HTML5.	Accessible through a mobile version of a website, with no limitations.
What does your product monitor?	Monitors any computer connected to the network, disks, hardware, software, and more. For a complete list, go to http://community.spiceworks.com/help/Setting_Up_Monitors_And_Email_Alerts#What .	Monitors websites, web applications, web pages, Windows servers, mail servers, DNS servers, FTP servers, SSL certificate validity, and network routers and switches.
How does your product monitor devices or applications?	Uses WMI, SNMP, SSH, and HTTPS. Adding an optional Windows-based agent in Spiceworks 6.	Agent required only for the Windows server monitors. All other applications can be monitored from the Internet without an installed agent.
How or where is your monitoring product deployed?	Local Windows platform	SaaS
What authentication mechanisms does your product support?	Built-in authentication module and AD support	Form-based authentication
Can new alerts be acknowledged from the mobile application?	No	Yes
Can the mobile app main screen or dashboard be customized?	No	No
Does the mobile app support adding "favorites" or critical servers to the main screen?	No	No
What ports are required to be opened on the network firewall?	VPN or HTTPS port 443 (port is configurable)	Port 80 and port 443 for HTTP and HTTPS access
Does the mobile app include remote desktop or remote control functionality from the mobile device?	No	No
Does the mobile app support basic troubleshooting tools such as ping and traceroute?	Yes	No
Does the mobile app include a command or console prompt from the mobile device?	No	No
Does the mobile app support multiple accounts or allow quick server switching?	Multiple accounts	Neither
What indicators can be displayed with the mobile app?	Disk utilization, up/down, and network utilization	Uptime, response time, disk utilization, CPU utilization, memory utilization, and SSL certificate validity

Insights from the Industry

Carrier Bloatware: The Android Plague

It's time to talk about carrier bloatware on smartphones. Actually, it's long past time. You know what I'm talking about: It's all of those apps that come pre-loaded on your new phone when you buy it, most of which are trial versions or apps for subscription services that are offered through the carrier. I had read a little about this problem prior to getting [my Motorola Droid Razr Maxx](#), and now I've had the displeasure of a firsthand experience.

I understand the phone manufacturers' and carriers' desire to include these apps on new phones. It's a simple way of advertising additional services that they offer (in the case of their own apps) or collecting a fee from another app publisher for that placement. It's the same thing that's been done on Microsoft and Apple desktop OSs for years. The problem here is that many of these smartphone apps are now being preinstalled in such a way that you, the end user and owner of the smartphone, can't uninstall the app if you don't want it.

This problem primarily affects Android phones currently. Apple has the iPhone ecosystem locked down pretty nicely—for now—so that only the basic apps for usability come preinstalled on those phones. With Windows Phones, you'll likely see preinstalled carrier apps; however, I haven't heard of any cases in which users weren't able to uninstall those apps if they chose to. And to me, that's the crux of the problem growing in the Android ecosystem: taking away that choice

from end users. I might want to use those apps, but if I don't, I want them gone, and gone for good.

So, what's the problem with having these apps on your phone? The first thing people will often complain about is that they're taking up storage memory, and although that's true, I'd say that's a minor problem. Most of these apps are fairly small, with sizes measured in kilobytes or low megabytes. Unless you're taking tons of pictures or videos with your phone, or downloading apps like crazy, the gigabytes of storage that come on your phone is probably sufficient. A bigger concern to me is the background processes that these apps can be running, using processing power, battery life, and potentially data.

For instance, on my Razr Maxx, I get a notification every day from the Play Store that there are updates available for apps that I've never used and have hidden (because I can't delete them). Nonetheless, the Play Store checks for updates, and I have to dismiss this notification every day. I could turn on automatic updating for these apps to avoid the notification, but then they'd be using my data to download an update that I don't want or need. Meanwhile, the Play Store is using my battery life and my processing power to tell me about these apps that I don't care about, and I have no way to make it stop. If anyone has figured out a way to solve this problem, please let me know.

Additionally, it was reported in a [study out of North Carolina State University](#) that the preinstalled apps on Android phones can lead to specific security vulnerabilities. Apps require specific permissions to access features or capabilities of the phone. What this research showed was that certain app combinations could "leak" permissions to other apps, which could then be exploited by malicious agents to compromise phone data and user privacy. Essentially, the researchers say that this security model is good, but it's flawed in its implementation with some of these apps.

When you think of the use of Android smartphones in business, with phones being supported by corporate IT departments, this

problem of unauthorized apps takes on another dimension. Android phones have already gotten somewhat of a black eye for business use. It seems like Google, along with the handset makers and the carriers, would want to make it as easy as possible for businesses to adopt these phones for their end users. Instead, the inability to control what apps are present on the phone is another point against Android in the enterprise.

As a user, what can you do about the carrier bloatware problem? You do have options, although nothing that's all that great at the moment. Here are a few things to consider:

- To start, go into your Manage Apps area; on the Running tab, stop any running process or service for these apps that you don't use.
- You can use the Hide feature so at least you don't have to see unwanted apps. To do so, in the Apps tray, you can touch and hold an app icon until a menu appears; it will either give you the option to Uninstall or Hide (among others).
- There have been apps available that claim to let you remove or freeze any unwanted apps, although I don't have firsthand experience with any to recommend, and the ones I've researched all tend to have mixed results. Remember that even if you can remove an unwanted app, chances are good that your next system OS update will just reinstall it.
- You can root your Android phone to gain complete access and control over the OS, and thus the ability to remove any of these unwanted apps. Rooting has benefits that many people highly recommend, but it's not necessarily an option everyone will want to consider.

Of course, you can find more information about these options on the Internet, including YouTube videos.

There's a feature to look forward to in Android 4.0, the Ice Cream Sandwich release. Called a [“kill switch” for apps](#), this feature lets you disable any app, regardless of where it's installed or who installed it.

It's not quite the same as removing unwanted apps entirely, but it's a step in the right direction. Of course, my cynical side wonders if it's taking carriers so long to release Ice Cream Sandwich to current-generation phones because they're trying to find a way around this OS-level control first.

When I started thinking about this bloatware problem, I wondered if the carriers might be on the road to class-action lawsuits. Because they're charging us for their data, and then forcing apps on us that eat into that data, it seems like a perfect case for serious legal action. But then I saw a [CNET report](#) that says the US Supreme Court seems to have decided that consumers don't have the right to file class-actions suits against carriers because the carrier contracts say we can't. Score one for big business. You can take your carrier to small claims court or go to arbitration instead.



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My previous smartphone, the original Droid by Motorola, didn't come with unremovable bloatware when I got it just over two years ago, which tells me this is a recent and growing problem. I know iPhone owners will be laughing at this Android issue they haven't had to deal with—although it could still come to iPhones one day. Actually, it's a strength of the Android platform that you typically get many useful apps preinstalled (in addition to the junk). But if I don't want to sign up for Netflix, I should be able to delete the Netflix app and be done with it. (Netflix is the largest of the preinstalled apps, by the way, coming in at over 22MB.)

So you've got some really useful apps from the start. You've got a system that's highly customizable (unlike some other mobile OSs I could name). But the carriers are mucking it up with junky bloatware and taking away much of what has made Android so successful. Do they care? No, I'm sure they don't—as long as their profits keep rolling in. Do you care? Let me know by sending me your thoughts on Twitter: [@bkwins](#). ■

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Our Kind of Tweet!

Product of the Month

Our favorite product this month comes from the reliable ThinkGeek site. These 30-watt *Angry Birds* speakers are perfect external speakers for your smartphone or other gaming device: “Just plug them in, adjust the volume and bass controls, rest your device on the included stand, then sit back and enjoy,” reads the press release. Each speaker in the set—Red Bird, Black Bird, Helmet Pig—is a bit different. Red Bird is compatible with any music player, phone, tablet, or gaming system. Black Bird is compatible with iPod, iPad, and iPhone only. And Helmet Pig is compatible with iPod and iPhone only. Of course, the coolest use of the *Angry Birds* speakers is to amplify the sound effects of *Angry Birds*. Or is that too meta? Find out more about these officially licensed [Angry Birds](#) collectibles at [ThinkGeek](#).



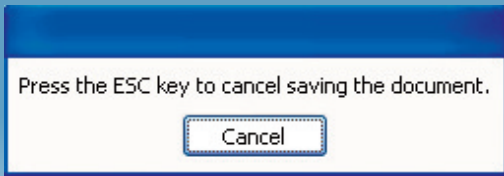


Figure 1: So, uh, not the Cancel key, huh?



Figure 2: Um. No thanks.

USER MOMENT OF THE MONTH

I work at a warehouse, and I once got a call from one of our salespeople on the sales floor. He wasn't the most savvy tech guy, but to heed a customer request to make online comparisons of products, he needed to access the Internet. But he couldn't get online, so he gave me a call. Our Internet access is password-protected, so I asked him if he had the right password. "Yes," he answered confidently. "I saw Tom type it in." Dubious, I asked him, "Can you tell me what the password is?" He said, "Seven stars."

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